The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent. The distribution of $$\overline{X} $$- $$\overline{Y}$$ is | b. normal with mean 0 and standard deviation 5/6.

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | a. 2.6

Survey responses of “ good, better, best”. which type of data is? | c. Ordinal

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 20; p = 3/5 | c. 12.0

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. | a. 0.1587

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean temperature is different from 45°F

A bag of colored candies contains 20 red, 25 yellow, and 35 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | b. {red, yellow, orange}

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | c. 0.036

The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $$\mu= 110$$ grams and $$\sigma = 25$$ grams. A sample of vitamins is to be selected. What is the probability that the sample mean will be less than 100 grams? Let $$P(Z<-2)=0.023;P(Z<-0.4)=0.421;P(Z<0.07)=0.529;P(Z<0.75)=0.673$$. | a. 0.023

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the expected number of wins for the player? | c. 2.31

Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children’s clothing should be manufactured and marketed in larger sizes. If $$X$$ is the weight of school children sampled in a nationwide study, then $$X$$ is an example of | d. a continuous random variable.

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | d. 1.55

Find the critical value or values of x2 based on the given information. H1: σ < 0.629 n = 19 α = 0.025 | b. 8.231

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. What is the probability that a randomly chosen widget produced by the company is defective? | d. 0.1175

The grade point averages for 10 randomly selected students are listed below. Construct a 90% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 | b. (0.81, 1.83)

For large numbers of degrees of freedom, the critical χ2 values can be approximated as follows: χ2 = (z + )2, where k is the number of degrees of freedom and z is the critical value. To find the lower critical value, the negative z-value is used, to find the upper critical value, the positive z-value is used. Use this approximation to estimate the critical value of χ2 in a right-tailed hypothesis test with n =125 and α = 0.01. | a. χ2 ≈ 162.833

Which statement is true for the scores of 1, 2, 3, 4, 5, 5, 7, 8, 9, and 10? | a. The mean is greater than the median.

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | c. parking times of the 130 students

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | a. 1.52

The standard IQ test has a mean of 96 and a standard deviation of 14. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | d. 34

An archer is able to hit the bull's-eye 55% of the time. If she shoots 8 arrows, what is the probability that she gets exactly 4 bull's-eyes? Assume each shot is independent of the others. | a. 0.2627

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | a. 0.7557

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.09 0.26 Democrat 0.22 0.2 Other 0.11 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | c. 0.214

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25,$$\overline{x} = 951,$$ s = 25. The sample data appear to come from a normally distributed population with σ = 28. | a. Normal

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | a. 0.89

Find the variance for the given probability distribution. x 0 1 2 3 4 P(x) 0.17 0.28 0.05 0.15 0.35 | d. 2.46

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 5.0 gallons and 6.0 gallons are pumped during a randomly selected minute. | d. 0.33

Construct the relative frequency distribution that corresponds to given frequency distribution Scores 91-100 81-90 71-80 61-70 <61 Frequency 3 5 12 5 2 | b. Scores 91-100 81-90 71-80 61-70 <61 Relative Frequency 11.11% 18.52% 44.44% 18.52% 7.41%

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $700 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $550. | d. 0.0013

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | c. 0.1210

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ < 0.14 n = 23 α = 0.10 | a. 14.042

The probabilities that a customer entering a particular bookstore buys 0, 1, 2, 3, 4, or 5 books are 0.30, 0.20, 0.20, 0.15, 0.10, and 0.05 respectively. For the probability distribution above, find the variance. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. 0.095089

A psychologist claims that more than 75 percent of the population suffers from professional problems due to extreme shyness. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to support the claim that the true proportion is greater than 75 percent.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | c. {2, 4, 6, 8, 10}

When conducting a t test for the correlation coefficient in a study with 16 individuals, the degrees of freedom will be | d. 14.

Suppose that $$X$$ is a negative binomial random variable with $$p = 0.2$$ and $$r = 4$$. Determine $$P(X=20)$$. | a. 0.0436

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. How many citizens would need to be sampled if a 95% confidence interval was desired to estimate the true proportion to within 5%? | a. 379

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2 and 12 minutes to park in the library lot. | d. 0.556744

A local bank needs information concerning the checking account balances of its customers. A random sample of 15 accounts was checked. The mean balance was $686.75 with a standard deviation of $256.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | d. ($513.17, $860.33)

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | b. 0.343

When considering area under the standard normal curve, decide whether the area to the left ofz =0.2is bigger than, smaller than, or equal to the area to the right ofz = -0.2 | c. equal to

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 11.5 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.5 gallons per minute? | a. 0.50

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | d. 98

If you were constructing a 99% confidence interval of the normal population mean based on a sample of $$n = 25$$ where the standard deviation of the sample $$s = 0.05$$. What is the critical value? Let $$t\_{0.005,24}=2.7969;t\_{0.01,24}=2.4922;z\_{0.01}=2.33; z\_{0.05}=2.58$$. | a. 2.7969

One year, professional sports players salaries averaged $1.5 million with a standard deviation of $0.7 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.1 million. | d. approximately 1

A random number generator is set top generate integer random numbers between 1 and 10 inclusive following a uniform distribution. What is the probability of the random number generator generating a 7? | c. 1/10

The probability is 0.7 that a person shopping at a certain store will spend less than $20. For random samples of 28 customers, find the mean number of shoppers who spend less than $20. | c. 19.6

According to a college survey, 22% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 16. | b. 1.66

Construct the cumulative frequency distribution that coressponds to the given frequency distribution | d.

A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? | a. 0.2503

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve to the right of 64. | d. 0.2525

In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, $$\sigma,$$ is 2.4. Construct the 95% confidence interval for the population mean. | b. (61.9, 64.9)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | a. descriptive statistics.

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces. | c. 7

Police estimate that 25% of drivers drive without their seat belts. If they stop 6 drivers at random, find the probability that all of them are wearing their seat belts. | a. 0.178

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | a. 0.4987

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 14 H1: μ < 14

A business venture can result in the following outcomes (with their corresponding chance of occurring in parentheses) Highly Successful (10%), Successful (25%), Break Even (25%), Disappointing (20%), and Highly Disappointing (?). If these are the only outcomes possible for the business venture, what is the chance that the business venture will be considered Highly Disappointing? | a. 20%

A researcher claims that 62% of voters favor gun control. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | gun control is 62% when it is actually different than 62%.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | d. all custormers

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $900 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $775.00 and $990.00? | c. .9579

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | c. 31.74%

In a random sample of 60 computers, the mean repair cost was $150 with a population standard deviation of $36. Construct a 99% confidence interval for the population mean. | b. ($138, $162)

Let $$\overline{X}$$ denote the sample mean of a random sample of size n1 = 16 taken from a normal distribution $$N(\mu, 36),$$ and let $$\overline{Y}$$ denote the sample mean of a random sample of size n2 = 25 taken from a different normal distribution $$N(\mu, 9).$$ Compute $$P(\overline{X} - \overline{Y}>5).$$ | d. 0.001

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 19 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8 years. | d. (19.9, 24.9)

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 647 drowning deaths of children with 30% of them attributable to beaches. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$. | d. 2.94

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | c. 99.7%

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1100 kWh and 1225 kWh. | c. 0.1971

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 2% using 99% reliability? | c. 4118

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of the seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the standard deviation is less than 14.7.

Suppose x is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | b. 0.7

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, $$\sigma^2.$$ Assume the data are normally distributed | a. (3.2, 26.3)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the number of ounces above which 80% of the dispensed sodas will fall. | c. 8.6

Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 30 H1: μ > 30

Which of the following is not true about the standard normal distribution? | b. The area under the standard normal curve to the left of z = 0 is negative.

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that at least two become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | b. 0.04

The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? | d. 0.4013

Both Fred and Ed have a bag of candy containing a lemon drop, a cherry drop, and a lollipop. Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | b. LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Using Excel to find three quartiles for the given data below: 1, 3, 6, 10, 15, 21, 28, 36. | b. 5.25, 12.5, 22.75

If the probability of a newborn child being female is 0.5, find the probability that in 100 births, 55 or more will be female. | b. 0.1841

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n =12, x = 5, p = 0.25 | d. 0.103

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $3.60 $4.50 $2.80 $6.30 $2.60 $5.20 $6.75 $4.25 $8.00 $3.00 Find the 95% confidence interval for the true mean. | b. ($3.39, $6.01)

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be "95% confident" in an inference. | c. In repeated sampling, 95% of the intervals constructed would contain the population mean.

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean. 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | d. 16

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 1.43. | c. 0.0764

The grade point averages for 10 randomly selected students in a statistics class with 125 students are listed below. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 What is the effect on the width of the confidence interval if the sample size is increased to 20? | b. The width decreases.

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 42.8 3 21.1 4 19.2 5 11.6 6 3.3 7+ 2.0 A family is selected at random. Find the probability that the size of the family is 4 or more. Round your result to three decimal places. | d. 0.169

Which of the following is true about the sampling distribution of the sample mean? | a. The mean of the sampling distribution is always μ.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 16 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. | c. (628.5, 661.5)

Survey responses of nationalities of survey respondents. which type of data is? | a. Nomial

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | d. 84.00%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 4, x = 3, p = 1/6 | a. 0.0154

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -1.83. | c. 0.0336

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | d. 1.23

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x 1 2 3 4 5 6 P(x) 0.16 0.19 0.22 0.21 0.12 0.10 | c. 2.36

The owner of a football team claims that the average attendance at games is over 67,800, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 50°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | c. The error of rejecting the claim that the mean temperature equals 50°F when it really does equal 50°F.

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students? | a. 0.0625

Flip a coin twice, create the sample space of possible outcomes. | a. HH HT TH TT

The number of power outages at a nuclear power plant has a Poisson distribution with a mean of 6 outages per year. The probability that there will be exactly 3 power outages in a year is | b. 0.0892

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | c. 1/6

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | d. 0.92

At one college, GPAs are normally distributed with a mean of 2.6 and a standard deviation of 0.4. What percentage of students at the college have a GPA between 2.2 and 3? | c. 68%

When is the correlation coefficient zero? | a. when there is no linear correlation

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed | d. regardless of the shape of the population.

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 26.1 n = 9 α = 0.01 | c. 20.090

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution $$N(\mu, 3300^2).$$ Compute $$P(\overline{X}-\overline{Y} <-2500).$$ | b. 0.0314

Find the mean of thefollowing probability distribution. x 0 1 2 3 4 P(x) 0.19 0.37 0.16 0.26 0.02 | c. 1.55

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | c. bigger than

Find the percentile for the data point. data set: 3 11 8 6 3 3 11 6 3 11 2 11 15 4 9 3 12 8 6 11 data point: 6 | b. 35

Find the critical value or values of x2 based on the given information. H0: σ = 8.0 n = 10 α = 0.01 | d. 1.735, 23.589

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. | d. (17.47, 21.73)

Let X be a random variable has the following uniform density function f(x) = 0.1 when 0< x < 10. What is the probability that the random variable X has a value greater than 5.3? | b. 0.47

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | b. Retrospective study

If you were constructing a 99% confidence interval of the population mean based on a sample of n=25 where the standard deviation of the sample s = 0.05, the critical value of t will be | b. 2.7969.

Suppose that P(A B) = 0.3 and P(B) = 0.4. Determine P(A' and B). | a. 0.28

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.2 millimeters? | d. 0.65

Suppose that $$X$$ has the probability density function $$f(x)=1.5x^2$$ for $$-1 Chọn một câu trả lời | d. 0.125

Two white mice mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black Create the sample space of possible outcomes. | b. WW, BW

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 8.5 to 10.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 9.2 millimeters? | b. 0.65

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to warrant rejection of the claim that the mean weight is at least

Flip a coin three times, create the sample space of possible outcomes. | c. HHH HHT HTH HTT THH THT TTH TTT

Find the standard deviation for the given probability distribution. x 0 1 2 3 4 P(x) 0.37 0.05 0.13 0.25 0.20 | a. 1.60

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.2-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.6 ounces. | a. approximately 0

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 4.0 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2.5 and 5.0 minutes to find a parking spot in the library lot. | c. 0.7745

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | b. 221

A psychologist claims that more than 3 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 3 percent when it is actually more than 3 percent.

According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered. | a. 0.044

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | d. 0.3174.

An entomologist writes an article in a scientific journal which claims that fewer than 16 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. |

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | c. descriptive statistics.

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.11 0.27 Democrat 0.25 0.16 Other 0.15 0.06 What is the probability that a Democrat opposes stronger gun control laws? | a. 0.390

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | d. 46 miles

We have created a 95% confidence interval for $$\mu$$ with the result (10, 15). What decision will we make if we test $$H\_0: \mu =16$$ versus $$H\_1: \mu eq 16$$ at $$\alpha= 0.05$$? | b. Reject $$H\_0$$ in favor of $$H\_1$$.

A researcher claims that 62% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.62 H1: p ≠ 0.62

In a binomial distribution with 10 trials, which of the following is true? | a. P(x > 7) = P(x ≥ 8)

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | c. 0.262

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(m, 33002). The distribution of the difference of the sample mean $$\overline{X}$$ - $$\overline{Y}.$$ | a. normal with mean 0 and standard deviation 1347.22

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a two-tailed test. | c. ±1.96

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | b. 0.57

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | b. 8.66

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | d. 0.082085

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | a. 1/9

According to the Center for Disease Control, 41.5% of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | a. 0.12

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | b. equal to

A polltaker asked graduating college seniors how many times they had given blood in the last year. The results of the survey are given below. The random variable x represents the number of times a person gave blood and P(x) represents the probability of selecting a graduating college who had given blood that percent of the time. What is the standard deviation for the number of times a person gave blood based on this poll? x 0 1 2 3 4 5 6 P(x) 0.30 0.25 0.20 0.12 0.07 0.04 0.02 | c. 1.54

Let $$X$$ be uniformly distributed over [0, 1]. Calculate $$E[X^3]$$. | b. 0.25

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | c. 68%

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | a. 0.526

The age distribution of students at a community college is given below. Age (years) Number of students Under 21 409 21-24 404 25-28 276 29-32 155 33-36 97 37-40 63 Over 40 86 A student from the community college is selected at random. Find the probability that the student is 21 years or over. Give your answer as a decimal rounded to three decimal places. | d. 0.726

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? | d. 0.0166

The probability that a house in an urban area will be burglarized is 2%. If 29 houses are randomly selected, what is the probability that none of the houses will be burglarized? | a. 0.557

Given that events *A* and *B*are mutually exclusive and P(*A*)*=*0.2andP(*B*) =0.7, are *A* and *B* independent? | no

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | d. 0.0668

Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, and 8, a score of 4 is the | a. mean.

Compute the critical value $$z\_{\alpha/2}$$ that corresponds to a 94% level of confidence. | b. 1.88

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | b. independent but not disjoint.

A test consists of 10 true/false questions. To pass the test a student must answer at least 7 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | a. 0.172

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) Frequency 35-39 1 40-44 3 45-49 5 50-54 11 55-59 7 60-64 7 65-69 1 | b. 53.4

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 13.5 gallons per minute. Find the variance of the distribution. | b. 1.33

Friskie is having her fifth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes. | c. NNR NNN

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household own 2 cars is: | b. 0.69

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $25,000 a year is: | c. 0.12

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, $$\sigma.$$ | d. (2.2, 5.8)

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | c. bigger than

Find the standard deviation for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth. n = 2661; p = 0.63 | d. 24.91

Survey responses of temperatures of the ocean at various depths. which type of data is? | a. Interval

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | c. 0.400

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | d. 89.6

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeter. A random sample of 12 computer chips is taken. What is the standard error for the sample mean? | a. 0.029

Find z if the normal curve area to the right of z is 0.8997. | c. -1.2798

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | a. 76.4

Assume that blood pressure readings are normally distributed with a mean of 124 and a standard deviation of 6.4. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 126. | c. 0.9938

The probability of winning a certain lottery is 1/51949. For people who play 560 times, find the standard deviation for the random variable X, the number of wins. | b. 0.1038

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 100 marbles that has a mean diameter greater than 0.851 cm? | b. 0.1587

Suppose that a number of miles that a car can run before its battery wears out is exponentially distributed with an average value of 10000 miles. If a person desires to take a 5000-mile trip, what is the probability that she will be able to complete her trip without having to replace her car battery? | c. 0.6

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major Frequency Engineering 868 English 2073 Mathematics 2164 Chemistry 318 Physics 856 Liberal Arts 1358 Business 1676 What is the probability that a randomly selected degree is not in Mathematics? | b. 0.768

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | c. 0.6826

LetZ is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | c. 0.2237

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | c. 45.7

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that from two to four become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.034

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that more than 16 ounces is dispensed in a cup. | c. 0.1587

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 33; p = 0.2 | b. 6.6

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 6. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18.6 lb. | a. 0.6730

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is 5 years or more. | d. 0.229790

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | d. 0.19

Assume that the heights of women are normally distributed. A random sample of 20 women have a mean height of 62.5 inches and a standard deviation of 2.5 inches. Construct a 98% confidence interval for the population variance, $$\sigma^2.$$ | c. (3.3, 15.6)

Construct the boxplot for the given data below: 3, 3, 5, 6, 4, 9, 8, 9, 6. | d.

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | c. 1.67

Find the critical value or values of x2 based on the given information. H1: σ ≠ 9.3 n = 28 α = 0.05 | c. 14.573, 43.194

A population of Australian Koala bears has a mean height of 20 inches and a standard deviation of 4 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 20 and 21. | b. 0.4772

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the following table. X(girls) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 P(X) 0.000 0.001 0.006 0.022 0.061 0.122 0.183 0.209 0.183 0.122 0.061 0.022 0.006 0.001 0.000 Find the probability of selecting 9 or more girls. | c. 0.212

The random variableX represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable X. | a. mean: 1.50; standard deviation: 0.87

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.45 ounces of soda. Every can that has more than 12.45 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | c. 0.1587

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,825 hours. | a. 0.1056

A psychologist claims that more than 6.3 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 6.3% H1: p > 6.3%

A major videocassette rental chain is considering opening a new store in an area that currently does not have any such stores. The chain will open if there is evidence that more than 25% households in the area are equipped with videocassette recorders (VCRs). It conducts a telephone poll of 300 randomly selected households in the area and finds that 96 have VCRs. The value of the test statistic in this problem is approximately equal to | c. 2.80

Which of the following is a discrete quantitative variable? | d. The number of employees of an insurance company

Suppose that the probability that a particular brand of light bulb fails before 900 hours of use is 0.2. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 900 hours or more? | b. 0.992

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 49, σ = 12.3, and the original population is not normally distributed. | a. Yes

Which of the following is a continuous quantitative variable? | d. The amount of milk produced by a cow in one 24-hour period

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, $$\overline{x} = 101,$$ s = 15.3. The sample data appear to come from a population with a distribution that is very far from normal, and σ is unknown. | b. Neither

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.10. | a. 37.3

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at least one head? | a. 7/8

The owner of a football team claims that the average attendance at games is over 60,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 60,000, when it is actually greater than 60,000.

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | a. 2.5

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 50 individuals resulted in an average income of $15000. What is the width of the 90% confidence interval? | d. $465.23

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a right-tailed test. | b. +1.34

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | c. i) and iv)

An entomologist writes an article in a scientific journal which claims that fewer than 11 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.0011 H1: p < 0.0011

According to a CNN poll taken in February of 2008, 67% of respondents disapproved of the overall job that President Bush was doing. Based on this poll, for samples of size 200, what is the mean number of American adults who disapprove of the overall job that President Bush is doing? | d. 134

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | d. 0.59 ± 0.068

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | a. number of items - discrete; total time - continuous

An airline reports that it has been experiencing a 15% rate of no-shows on advanced reservations. Among 150 advanced reservations, find the probability that there will be fewer than 20 no-shows. | c. 0.251

The name of each contestant is written on a separate card, the cards are placed in a bag, and three names are picked from the bag. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | c. Random

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. |

A random sample of 40 students has a mean annual earnings of $3120 and a population standard deviation of $677. Construct the confidence interval for the population mean, μ. Use a 95% confidence level. | c. ($2910, $3330)

An economist is interested in studying the incomes of consumers in a particular region. The normally population standard deviation is known to be $1000. What total sample size would the economist need to use for a 95% confidence interval if the width of the interval should not be more than $100? Let $$z\_{0.025}=1.96; z\_{0.05}=1.65$$. | a. n = 1537

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | a. 0.254811

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. | c. 0.1469

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | c. 0.8

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 90\% confidence interval to estimate the true proportion of students who receive financial aid. Let $$z\_{0.1}=1.28;z\_{0.05}=1.65$$. | c. (0.533; 0.647)

To determine the mean of a binomial distribution, it is necessary to know the number of successes involved in the problem. | a. False

Which of the following is always true for a normal distribution? | b. P(2< x ≤ 8) = P(2 ≤ x < 8)

Find the normal-curve area between z = -1.48 and z = 0. | d. 0.4306

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that at least one chocolate bar was eaten. | a. 5/9

A study of 1000 randomly selected flights of a major airline showed that 782 of the flights arrived on time. What is the probability of a flight arriving on time? | a. 391/500

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | c. 1.96%

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation? | c. 12

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 1900 miles. What is the probability a certain tire of this brand will last between 56,010 miles and 56,580 miles? | b. 0.0180

According to a 2007 report published by the National Center on Addiction and Substance Abuse at Columbia University, 59% of teens have family dinners five or more times a week, 13% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.64. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | b. 0.08

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 45.1 3 22.2 4 19.7 5 8.0 6 3.1 7+ 1.9 A family is selected at random. Find the probability that the size of the family is less than 6. Round your result to three decimal places. | c. 0.950

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: σ = 14.7 H1: σ < 14.7

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | b. binomial distribution.

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | d. {0, 1, 2}

The use of the Poisson distribution requires a value n which indicates a definite number of independent trials. | a. False

The process of using sample statistics to draw conclusions about true population parameters is called | d. statistical inference.

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 65% with a standard deviation of 7.1. Assuming that the distribution is normal, what percentage of states had between 50 and 70 percent of it's voting-age population who were registered to vote? | a. 0.74

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | c. Observation study

According to a college survey, 22% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 16. | d. 3.52

The following table contains the probability distribution for X = the number of traffic accidents reported in a day in Hanoi. X 0 1 2 3 4 5 P(X) 0.10 0.20 0.45 0.15 0.05 0.05 The probability of more than 2 accidents is | d. 0.25

A Type II error is committed when | c. we don't reject a null hypothesis that is false.

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 0.52. | b. 0.3015

According to the Center for Disease Control, in 2004, 65.7% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if two randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | d. 0.88

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | c. 0.37 ± .053

Which of the following is not true of statistics? | c. Statistics is used to answer questions with 100% certainty.

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers. | a. (189.5, 194.5)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that between 15 and 18 ounces are dispensed in a cup. | c. 0.1598

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | c. 0.625

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence? | a. 150

The area to the right of z = 1.0 is equal to | a. 0.1587.

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -2.05. | b. 0.0202

Suppose that11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | c. 0.1139

A survey of senior citizens at a doctor's office shows that 52% take blood pressure-lowering medication, 43% take cholesterol-lowering medication, and 5% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | d. 0.90

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 2.2 inches. Construct a 99% confidence interval for the population standard deviation. Let $$\chi\_{0.005,15}^2=32.8;\chi\_{0.995,15}^2=4.6$$. | a. (1.5, 4.0)

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | b. 0.8708

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | d. 0.0577

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $25,000 a year is: | b. 0.48

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | c. 35%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 64, x = 3, p = 0.04 | c. 0.221

Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in Vietnam revealed the following endowments (in millions of dollars) 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. What value will be used as the point estimate for the mean endowment of all private colleges in Vietnam? | a. $180.975

The number of 113 calls in Hanoi, has a Poisson distribution with a mean of 10 calls a day. The probability of seven 113 calls in a day is | b. 0.09

Find the normal-curve area between z = -2 and z = -1. | c. 0.1359

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | a. 0.8805

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 24 and 28. | c. 0.2295

A 99% confidence interval estimate can be interpreted to mean that | a. Both of the above.

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency Number of respondents Never 1020 Less than once a year 302 Once a year 571 Several times a year 502 Once a month 308 Two-three times a month 380 Nearly every week 240 Every week 839 More than once a week 329 What is the probability that a randomly selected respondent attended religious services more than once a year? | a. 0.58

Find z if the normal curve area between 0 and z is 0.4756. | d. 1.9703

The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Hours 5 10 4 6 10 9 Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 3/17 5/17 6/17 2/17 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart | beer bash = 4/3 toga = 2 beer bash = 4 maquerade (<0.5) , have 1.0 and 0.5

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

The conditional probability of event G, given the knowledge that event H has occurred, would be written as \_\_\_\_\_. | c. P(G H)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The random variable X represents the number of credit cards that adults have along with the corresponding probabilities. Find the mean and standard deviation. x 0 1 2 3 4 P(x) 0.49 0.05 0.32 0.07 0.07 | d. mean: 1.18; standard deviation: 1.30

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 20% of people with home-based computers have access to on-line services. Suppose that 15 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | b. 0.1032

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 20% of people with home-based computers have access to on-line services. Suppose that 15 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | c. 0.9648

Which of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. 7/10

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

The age distribution of students at a community college is given below. Age (years) Number of students Under 21 416 21-24 419 25-28 263 29-32 151 33-36 93 37-40 59 Over 40 85 A student from the community college is selected at random. Find the probability that the student is under 37 years old. Give your answer as a decimal rounded to three decimal places. | d. 0.903

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 18 CEOs and the 97% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is more than $3,000,000? | d. I cannot conclude that the average exceeds $3,000,000 at the 97% confidence level.

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

If we know that the length of time it takes a college student to find a parking spot in the library parking lot follows a normal distribution with a mean of 3.5 minutes and a standard deviation of 1 minute, find the probability that a randomly selected college student will find a parking spot in the library parking lot in less than 3 minutes. Let $$P(Z<-0.62) =0.2674;P(Z<-0.5) = 0.3085; P(Z<-0.37)=0.3551;P(Z<-0.87)=0.1915$$. | d. 0.3085

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Let Z is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | 0.2237

Find the percentile for the data point. Data set: 51 36 48 75 75 75 49 data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

If sample points A, B, C, and D are the only possible outcomes of an experiment, find the probability of D using the table below. Sample Point A B C D Probability 1/5 1/5 1/5 | 2/5

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 8.5 to 10.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 9.8 millimeters? | 0.350

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

The Columbia Power Company experiences power failures with a mean of 0.210 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | a. 0.018

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

Suppose that P(A B) = 0.6, P(A) = 0.5 and P(B) = 0.1. Find the value of P(B A). | a. 0.12

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A \_ is a portion of a population that is representative of the population from which it is selected. | sample

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | 1/10

A random number generator is set top generate integer integers from 1 to 10 following a uniform distribution. What is the probability of the random number generator generating a 7? | 1/10

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

A sample of the variable x assumes the following values: 57 51 58 52 50 59 57 51 59 56 (50 53 54 50 57 51 53 55 52 54) Construct a frequency distribution for this data. (i) x (Frequency) 50-51 (6) 52-53 (4) 54-55 (3) 56-57(4) 58-59 (3) (ii) 50-51 (30%) 52-53 (20%) 54-55 (15%) 56-57 (20%) 58-59 (15%) (iii) <= 51 (6) <= 53 (10) , <= 55 (13) , <= 57 (17) , <= 59 (20) | (i)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

It was found that 60% of the workers were white, 30% were black and 10% are other races. Given that a worker was white, the probability that the worker had claimed bias was 30%. Given that a worker was black, the probability that the worker had claimed bias was 40%. Given that a worker was other race, the probability that the worker had claimed bias was 0%. If a randomly selected worker had claimed bias, what is the probability that the worker is black? | 0.4

Given events A and B with probabilities P(A) = 0.75 and P(B) = 0.15, are A and B mutually exclusive? | cannot be determined

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

Two events A and B are said to be \_\_\_\_\_\_\_\_\_ if P(A B) = P(A) or if P(B A) = P(B). | independent

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

It was found that 60% of the workers were white, 30% were black and 10% are other races. Given that a worker was white, the probability that the worker had claimed bias was 30%. Given that a worker was black, the probability that the worker had claimed bias was 40%. Given that a worker was other race, the probability that the worker had claimed bias was 0%. If a randomly selected worker had claimed bias, what is the probability that the worker is white? | 0.6

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

Given that events A and B are mutually exclusive and P(A) = 0.5 and P(B) =0.7, are A and B independent? | no

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

If P(A) = 0.72, P(B) = 0.11, and A and B are independent, find P(A B). | 0.72

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

Assume that P(A) = 0.7 and P(B) = 0.2. If A and B are independent, find P(A and B). | 0.14

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

| 1.55

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical Saturday night is distributed according to the density function with . Find the probability that, on a typical Saturday night, you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

According to a CNN poll taken in February of 2008, 67% of respondents disapproved of the overall job that President Bush was doing. Based on this poll, for samples of size 140, what is the mean number of American adults who disapprove of the overall job that President Bush is doing? | 93.8

Apple would like to estimate the web browsing battery life (in hours) of the Iphone 6. Four users are randomly selected and the battery life are: 4 4 3 5 Using this sample, what is the point estimate for the variance of the battery life? | None

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | d. Mean = 0.67; Standard deviation = 0.44

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

Let X be a continuous random variable with probability density function defined by f(x) = 1/8 x^2 , 0<= x <= 2 and f(x) = 0 , otherwise Find the mean of X | 1/2

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

Suppose that X has a discrete uniform distribution on the integers 20 to 79. Which of the followings are true? (i) P(X > 41) = 13/20 (ii) E(10X)= 495 | (ii) only

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

Suppose that X has a discrete uniform distribution on the integers 2 to 8. Which of the following are true? (i) E(4X) = 20 (ii) σ(X) = 4 | (i) only

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with [\lambda](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?texexp=\lambda) = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour between 6:00 and 7:00 p.m. is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the probability that the number favoring the substation is more than 12? | 0.398

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.25 to 12.25 gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

The number of customers that arrive at a fast-food business during a one-hour period is known to be Poisson distributed with a mean equal to 8.60. What is the probability that exactly 8 customers will arrive in a one-hour period? | 0.1366

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 26 minutes and a standard deviation of 3 minutes. A random sample of 30 cars is selected. So, 90% of the sample means will be greater than what value? | 25.3 minutes

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

Use the data to create a stemplot. The following data show the number of laps run by each participant in a marathon. 46 65 55 43 51 48 57 30 43 49 32 56 |

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. 11 15 23 29 19 22 21 20 15 25 17 What is the value of IQR? | 8

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf 15 235 16 889 17 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. 32 37 41 44 46 48 53 55 56 57 59 63 65 66 68 69 70 71 74 74 75 77 78 79 80 82 83 86 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

A store manager counts the number of customers who make a purchase in his store each day. The data are as follows. 10 11 8 14 7 10 10 11 8 7 Construct the dot plot for the given data. | 2 2 3 2 1 (7X2 , 8X2 , 10X3 11X2 14X1)

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Let denote the sample mean of a random sample of size n1 = 16 taken from a normal distribution N(125, 36), and let denote the sample mean of a random sample of size n2 = 25 taken from a different normal distribution N(125, 9). The distribution of is | normal with mean 0 and standard deviation 1.6155

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: 60 61 62 63 64 65 66 68 68 69 70 73 73 74 75 76 76 81 81 82 86 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 17, σ is not known, and the original population is normally distributed. | Yes, test statistic = (x^- – u) / (o nhan sqrt(n) )

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is between 0.40 and 0.46. Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

Determine the [test](http://cms.fpt.edu.vn/elearning/mod/quiz/view.php?id=106687) statistic to [test](http://cms.fpt.edu.vn/elearning/mod/quiz/view.php?id=106687) the claim about the population proportion p > 0.51 given n = 50 and p ^ - = 0.61 Use alpha = 0.05 | None of the other choices is true

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x 15 21 16 30 y 67 80 85 78 | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y 30 40 90 100 Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

Assume that you are predicting X from Y. Which of the following correlation coefficients would yield predictions with the most error? | 0.05

In a regression problem the following pairs of (x, y) are given: (2, 1), (3,-1), (2, 0), (4,-2) and (4, 2). That indicates that the: | None

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 100 90 What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

Find the value of the linear correlation coefficient r. x 85.3 78.3 80.6 95.8 y 12.2 15.1 19.4 17.4 | a. 0.07

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

A random sample of 20 observations was made on the diameter of spot welds and the corresponding weld shear strength. Given that r = 0.65, what is the value of test statistic if we want to test the hypothesis that ρ = 0 at a level of significance of 0.05. Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are shown below. Test 1 7.5 6.4 6.6 5.8 8.3 Test 2 6.7 6.6 7.2 4.0 6.7 Find the value of the linear correlation coefficient r. | e. 0.58

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

For a group of students in a statistics class, the scatter diagram compares their test scores (y) and the number of red shirts they have(x) is shown as below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. Negative correlation

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

The data below are the final exam scores of 10 randomly selected statistics students and the number of hours they studied for the exam. Hours,x 3 5 2 8 2 4 4 5 6 3 Scores,y 65 80 60 66 78 85 90 90 71 88 Find the equation of the regression line for the given data. | a. = -0.24x + 78.31

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 120 90 What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | Observation study

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | 2, 4, 6, 8, 10

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | 0.117

Pick a bit string from the set of all bit strings of length 10. Find the probability of getting a bit string that begins and ends with 0. | 1/4

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | 0.22

A pair of dice is thrown twice. What is the probability of getting totals of 7 and 11? | 1/54

Given events E and F with probabilities P(E) = 0.65 and P(F) = 0.19, are E and F mutually exclusive? | cannot be determined

Which of the following is a discrete random variable? | The number of eggs that hens lay in a month

Suppose that 11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1139

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | 1.67

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | 45.7

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.19. (ii) The probability of the event that the code has at least 7 letters is 0.5 | (i) only

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | 0.1210

In a manufacturing process that laminates several ceramic layers, 2% of the assemblies are defective. Assume that the assemblies are independent. What is the mean number of assemblies that need to be checked to obtain five defective assemblies? | 250

Printed circuit cards are placed in a functional test after being populated with semiconductor chips. A lot contains 40 cards, and a sample of 3 are selected at random without replacement for functional testing. If 5 cards are defective, what is the probability that all cards in the sample are defective? | 0.001

(See picture) [file:1968.jpg] | (i)

(See picture) [file:1979.jpg] | 0.61

(See picture) [file:1986.jpg] | 8

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

A multiple-choice quiz has 20 questions each with 4 possible answers of which only 1 is the correct answer. What is the probability that sheer guesswork yields 4 correct answers for 5 of the 20 problems about which the student has no knowledge? | 0.0146

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | 0.082085

Suppose that a qualitative variable has three categories with frequencies of occurrence shown in the table. When constructing a pie chart, what is the size of the angle for class A? [file:3558.jpg] | (ii)

[file:3579.jpg] | 598, 600, 602, 604, 605

The heights (in inches) of 20 adult males are listed below. 70 72 71 70 69 73 69 68 70 71 67 71 70 74 69 68 71 71 71 72 Find the range of the data set. | 7

A large retail company gives an employment screening test to all prospective employees. Frankin Gilman recently took the test and it was reported back to him that his score placed him at the 80th percentile. Therefore: | Frankin scored as high or higher than 80 percent of the people who took the test.

The standard error of the population proportion will become larger | as population proportion approaches 0.50.

A random sample of size n = 16 is taken from a normal population with mean 40 and variance 5. The distribution of the sample mean is | normal with mean 40 and variance 5/16.

A normal population has mean 76 and variance 9. How large must be the random sample be if we want the standard error of the sample mean to be 1.1? | 8

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. [file:2187.jpg] | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. [file:2195.jpg] | (189.5, 194.5)

(See picture) [file:2212.jpg] | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. [file:2225.jpg] | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? [file:2235.jpg] | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? [file:2232.jpg] | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

[file:3641.jpg] | (ii)

(See picture) [file:2252.jpg] | Reject the null hypothesis

[file:3649.jpg] | (ii)

(See picture) [file:2255.jpg] | to = -1.98, fail to reject Ho

(See picture) [file:2259.jpg] | 29.07

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:2271.jpg] | (iv)

(See picture) [file:3700.jpg] | 3.000

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Which statement is true? | Probability models quantify the risks involved in decisions made every day

How many baseball teams of nine members can be chosen from among twelve boys, without regard to the position played by each member? | 220

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | 0.172

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Among the contestants in a competition are 25 women and 25 men. If 3 winners are randomly selected, what is the probability that they are all men? | 0.117

For each of the following pairs of events, which are subsets of the set of all possible outcomes when a coin is tossed three times, choose the pair(s) is (are) independent. | All of the others

An electronic scale that displays weights to the nearest pound is used to weigh packages. The display shows only three digits. Any weight greater than the display can indicate is shown as 999. The random variable X is the displayed weight. What is the number of member in the sample space of X? | 1,000

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 2.5

A polltaker asked graduating college seniors how many times they had given blood in the last year. The results of the survey are given in the table. The random variable X represents the number of times a person gave blood and P(x) represents the probability of selecting a graduating college who had given blood that percent of the time. What is the standard deviation for the number of times a person gave blood based on this poll? [file:1911.jpg] | 1.16

Suppose that X has a discrete uniform distribution on the integers 1 to 15. Find 3V(X). | 56

Assume that a procedure yields a binomial distribution with a trial repeated n = 4 times. Use the binomial probability formula to find the probability of x=3 successes given the probability p=1/6 of success on a single trial. | 0.0154

In a certain manufacturing process it is known that, on the average, 1 in every 100 items is defective. What is the probability that the fifth item inspected is the first defective item found. | 0.0096

A naturalist leads whale watch trips every morning in March. The number of whales seen has a Poisson distribution with a mean of 4.3. Find the probability that on a randomly selected trip, the number of whales seen is 3. | 0.1798

The probability density function of the time required to complete an assembly operation is f(x)= 0.1 for 20≤ x ≤ 30 seconds. Determine the proportion of assemblies that requires more than 25 seconds to complete. | 0.50

(See picture) [file:1983.jpg] | 0.135

(See picture) [file:1989.jpg] | 5.76

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | 0.0668

(See picture) [file:2084.jpg] | (i)

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.367879

The following data reflect the number of customers who test drove new cars each day for a sample of 20 days at the Redfield Ford Dealership. (See picture) Given these data, what is the range? [file:3562.jpg] | 14

(See picture) [file:2112.jpg] | (iv)

Find the sample standard deviation. 15 42 53 | 19.6

The following data reflect the number of customers who test drove new cars each day for a sample of 20 days at the Redfield Ford Dealership. (See picture) Given these data, what is the interquartile range? [file:3589.jpg] | 3

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed... | if the shape of the population is normally distributed.

(See picture) [file:2162.jpg] | 0.4562

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.8767

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 18 CEOs and the 97% confidence interval was calculated to be (2181260, 5836180). Which of the following interpretations is correct? | We are 97% confident that the average total compensation of all CEOs in the Service industry falls in the interval 2181260 to 5836180.

(See picture) [file:2185.jpg] | 97

A trucking firm suspects that the variance for a certain tire is greater than 1,000,000. To check the claim , the firm puts 151 of these tires on its trucks and gets a standard deviation of 1012 miles . Find the value of the test statistic to test the trucking firm’s claim at the significance level of 0.05. | 153.6

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. [file:2188.jpg] | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. [file:2201.jpg] | (3.41, 5.99)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. [file:2222.jpg] | 217

(See picture) [file:2228.jpg] | 0.59 ± 0.068

(See picture) [file:2245.jpg] | (iii)

(See picture) [file:2247.jpg] | 0.0027

An article stated that students in FPT university system take an average of 4.5 years to finish their undergraduate degrees. Suppose you believe that the average time is longer. You conduct a survey of 49 students and obtain a sample mean of 5.1 with a sample standard deviation of 1.2. Assume that time to finish their undergraduate degrees is normally distributed. Calculate the value of the test statistic and the critical values for this test statistic. Use a significance level of 0.05. [file:3645.jpg] | Test statistic: 3.5 and critical value: 1.645

(See picture) [file:2258.jpg] | 9.209

Suppose that a random variable X has the discrete uniform distribution on the integers 10,…,20. Find P(X = 7). | 0

[file:3656.jpg] | 16.875

(See picture) [file:2264.jpg] | (iii)

(See picture) [file:2268.jpg] | (i)

(See picture) [file:3698.jpg] | 2.552

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. [file:2287.jpg] | 0.98

(See picture) [file:3690.jpg] | 0.948

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | Number of items - discrete; total time - continuous

What is a method of collecting data? | A retrospective study using historical data

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

Flip a coin twice, create the sample space of possible outcomes. (Below, H stands for Head, T stands for Tail) | HH HT TH TT

A single six-sided die is rolled. Find the probability of rolling a number less than 3. | 0.333

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.19

(See picture) [file:1867.jpg] | disjoint but not independent.

A batch of 500 machined parts contains 10 that do not conform to customer requirements.Parts are selected succesively, without replacement, until a nonconforming part is obtained. Determine the range (possible values) of the random variable giving the number of parts selected. | [1, 491]

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | 15.6

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | 1.55

Let the random variable X have a discrete uniform distribution on the interval [1, 35]. Determine the mean and variance of X. | 18 and 102

Find the mean for the binomial distribution which has the stated values of n=20 and p=0.6. Round answer to the nearest tenth. | 12.0

The probability of a successful optical alignment in the assembly of an optical data storage product is 0.8. Assume the trials are independent. What is the probability that the first successful alignment requires exactly four trials? | 0.0064

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 1.52

(See picture) [file:1973.jpg] | 1.25

(See picture) [file:1982.jpg] | 0

Let X be a continuous random with f(x) is probability density function. Which the following statement(s) is (are) TRUE? | All of them

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

Assume that X has a normal distribution with the mean is µ= 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1 | 0.1587

(See picture) [file:2084.jpg] | (i)

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.254811

Find the mode for the sample composed of the observations 4, 5, 6, 6, 6, 7, 7, 8, 8, 5. | 6

(See picture) [file:2112.jpg] | (iv)

Which of the following is an acceptable format for setting up class boundaries for a frequency distribution? | All of the other choices is correct

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

The heights of people in a certain population are normally distributed with a mean of 64 inches and a standard deviation of 3.1 inches. Determine the sampling distribution of the mean for samples of size 39. | Normal, mean = 64 inches, standard deviation = 0.5 inches

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed... | regardless of the shape of the population.

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. [file:2194.jpg] | (21.1, 23.7)

(4335) (11081) [file:2182.jpg] | [765, 795]

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. [file:2211.jpg] | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). [file:2224.jpg] | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? [file:2241.jpg] | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

(See picture) [file:2246.jpg] | (iv)

(See picture) [file:2253.jpg] | Test statistic z = -8.43. There is sufficient evidence to warrant rejection of the claim that the population mean temperature is 22 degree C.

[file:3646.jpg] | (ii)

(See picture) [file:2258.jpg] | 9.209

(See picture) [file:2257.jpg] | 14.573, 43.194

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:3694.jpg] | -0.93

It is believed that, the average numbers of hours spent studying per day (HOURS) during undergraduate education should have a positive linear relationship with the starting salary (SALARY, measured in thousands of dollars per month) after graduation. Given below is the Excel output from regressing starting salary on number of hours spent studying per day for a sample of 51 students. NOTE: Some of the numbers in the output are purposely erased. The error sum of squares (SSE) of the above regression is [file:3710.jpg] | 92.0218

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. | (189.5, 194.5)

(See picture) | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. | (3.41, 5.99)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | 217

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. | 0.98

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | (21.1, 23.7)

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference|In repeated sampling, 95% of the intervals constructed would contain the population mean.

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed...|if the shape of the population is normally distributed.

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed.|regardless of the shape of the population.

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent. The distribution of $$\overline{X} $$- $$\overline{Y}$$ is | b. normal with mean 0 and standard deviation 5/6.

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | a. 2.6

Survey responses of “ good, better, best”. which type of data is? | c. Ordinal

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 20; p = 3/5 | c. 12.0

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. | a. 0.1587

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean temperature is different from 45°F

A bag of colored candies contains 20 red, 25 yellow, and 35 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | b. {red, yellow, orange}

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | c. 0.036

The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $$\mu= 110$$ grams and $$\sigma = 25$$ grams. A sample of vitamins is to be selected. What is the probability that the sample mean will be less than 100 grams? Let $$P(Z<-2)=0.023;P(Z<-0.4)=0.421;P(Z<0.07)=0.529;P(Z<0.75)=0.673$$. | a. 0.023

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the expected number of wins for the player? | c. 2.31

Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children’s clothing should be manufactured and marketed in larger sizes. If $$X$$ is the weight of school children sampled in a nationwide study, then $$X$$ is an example of | d. a continuous random variable.

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | d. 1.55

Find the critical value or values of x2 based on the given information. H1: σ < 0.629 n = 19 α = 0.025 | b. 8.231

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. What is the probability that a randomly chosen widget produced by the company is defective? | d. 0.1175

Find the origin data from the sterm-and-leaf plot | 732,735,738,742,743,749,751,758

The grade point averages for 10 randomly selected students are listed below. Construct a 90% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 | b. (0.81, 1.83)

For large numbers of degrees of freedom, the critical χ2 values can be approximated as follows: χ2 = (z + )2, where k is the number of degrees of freedom and z is the critical value. To find the lower critical value, the negative z-value is used, to find the upper critical value, the positive z-value is used. Use this approximation to estimate the critical value of χ2 in a right-tailed hypothesis test with n =125 and α = 0.01. | a. χ2 ≈ 162.833

Which statement is true for the scores of 1, 2, 3, 4, 5, 5, 7, 8, 9, and 10? | a. The mean is greater than the median.

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | c. parking times of the 130 students

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | a. 1.52

The standard IQ test has a mean of 96 and a standard deviation of 14. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | d. 34

An archer is able to hit the bull's-eye 55% of the time. If she shoots 8 arrows, what is the probability that she gets exactly 4 bull's-eyes? Assume each shot is independent of the others. | a. 0.2627

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | a. 0.7557

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.09 0.26 Democrat 0.22 0.2 Other 0.11 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | c. 0.214

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25,$$\overline{x} = 951,$$ s = 25. The sample data appear to come from a normally distributed population with σ = 28. | a. Normal

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | a. 0.89

Find the variance for the given probability distribution. x 0 1 2 3 4 P(x) 0.17 0.28 0.05 0.15 0.35 | d. 2.46

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 5.0 gallons and 6.0 gallons are pumped during a randomly selected minute. | d. 0.33

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $700 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $550. | d. 0.0013

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | c. 0.1210

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ < 0.14 n = 23 α = 0.10 | a. 14.042

The probabilities that a customer entering a particular bookstore buys 0, 1, 2, 3, 4, or 5 books are 0.30, 0.20, 0.20, 0.15, 0.10, and 0.05 respectively. For the probability distribution above, find the variance. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. 0.095089

A psychologist claims that more than 75 percent of the population suffers from professional problems due to extreme shyness. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to support the claim that the true proportion is greater than 75 percent.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | c. {2, 4, 6, 8, 10}

When conducting a t test for the correlation coefficient in a study with 16 individuals, the degrees of freedom will be | d. 14.

Suppose that $$X$$ is a negative binomial random variable with $$p = 0.2$$ and $$r = 4$$. Determine $$P(X=20)$$. | a. 0.0436

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. How many citizens would need to be sampled if a 95% confidence interval was desired to estimate the true proportion to within 5%? | a. 379

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2 and 12 minutes to park in the library lot. | d. 0.556744

A local bank needs information concerning the checking account balances of its customers. A random sample of 15 accounts was checked. The mean balance was $686.75 with a standard deviation of $256.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | d. ($513.17, $860.33)

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | b. 0.343

When considering area under the standard normal curve, decide whether the area to the left ofz =0.2is bigger than, smaller than, or equal to the area to the right ofz = -0.2 | c. equal to

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 11.5 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.5 gallons per minute? | a. 0.50

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | d. 98

If you were constructing a 99% confidence interval of the normal population mean based on a sample of $$n = 25$$ where the standard deviation of the sample $$s = 0.05$$. What is the critical value? Let $$t\_{0.005,24}=2.7969;t\_{0.01,24}=2.4922;z\_{0.01}=2.33; z\_{0.05}=2.58$$. | a. 2.7969

One year, professional sports players salaries averaged $1.5 million with a standard deviation of $0.7 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.1 million. | d. approximately 1

A random number generator is set top generate integer random numbers between 1 and 10 inclusive following a uniform distribution. What is the probability of the random number generator generating a 7? | c. 1/10

The probability is 0.7 that a person shopping at a certain store will spend less than $20. For random samples of 28 customers, find the mean number of shoppers who spend less than $20. | c. 19.6

According to a college survey, 22% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 16. | b. 1.66

Construct the cumulative frequency distribution that coressponds to the given frequency distribution | d.

A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? | a. 0.2503

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve to the right of 64. | d. 0.2525

In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, $$\sigma,$$ is 2.4. Construct the 95% confidence interval for the population mean. | b. (61.9, 64.9)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | a. descriptive statistics.

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces. | c. 7

Police estimate that 25% of drivers drive without their seat belts. If they stop 6 drivers at random, find the probability that all of them are wearing their seat belts. | a. 0.178

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | a. 0.4987

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 14 H1: μ < 14

A business venture can result in the following outcomes (with their corresponding chance of occurring in parentheses) Highly Successful (10%), Successful (25%), Break Even (25%), Disappointing (20%), and Highly Disappointing (?). If these are the only outcomes possible for the business venture, what is the chance that the business venture will be considered Highly Disappointing? | a. 20%

A researcher claims that 62% of voters favor gun control. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | gun control is 62% when it is actually different than 62%.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | d. all custormers

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $900 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $775.00 and $990.00? | c. .9579

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | c. 31.74%

In a random sample of 60 computers, the mean repair cost was $150 with a population standard deviation of $36. Construct a 99% confidence interval for the population mean. | b. ($138, $162)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 19 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8 years. | d. (19.9, 24.9)

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 647 drowning deaths of children with 30% of them attributable to beaches. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$. | d. 2.94

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | c. 99.7%

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1100 kWh and 1225 kWh. | c. 0.1971

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 2% using 99% reliability? | c. 4118

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of the seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the standard deviation is less than 14.7.

Suppose x is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | b. 0.7

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, $$\sigma^2.$$ Assume the data are normally distributed | a. (3.2, 26.3)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the number of ounces above which 80% of the dispensed sodas will fall. | c. 8.6

Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 30 H1: μ > 30

Which of the following is not true about the standard normal distribution? | b. The area under the standard normal curve to the left of z = 0 is negative.

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that at least two become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | b. 0.04

The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? | d. 0.4013

Both Fred and Ed have a bag of candy containing a lemon drop, a cherry drop, and a lollipop. Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | b. LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Using Excel to find three quartiles for the given data below: 1, 3, 6, 10, 15, 21, 28, 36. | b. 5.25, 12.5, 22.75

If the probability of a newborn child being female is 0.5, find the probability that in 100 births, 55 or more will be female. | b. 0.1841

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n =12, x = 5, p = 0.25 | d. 0.103

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $3.60 $4.50 $2.80 $6.30 $2.60 $5.20 $6.75 $4.25 $8.00 $3.00 Find the 95% confidence interval for the true mean. | b. ($3.39, $6.01)

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be "95% confident" in an inference. | c. In repeated sampling, 95% of the intervals constructed would contain the population mean.

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean. 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | d. 16

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 1.43. | c. 0.0764

The grade point averages for 10 randomly selected students in a statistics class with 125 students are listed below. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 What is the effect on the width of the confidence interval if the sample size is increased to 20? | b. The width decreases.

Which of the following is true about the sampling distribution of the sample mean? | a. The mean of the sampling distribution is always μ.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 16 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. | c. (628.5, 661.5)

Survey responses of nationalities of survey respondents. which type of data is? | a. Nomial

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | d. 84.00%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 4, x = 3, p = 1/6 | a. 0.0154

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -1.83. | c. 0.0336

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | d. 1.23

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x 1 2 3 4 5 6 P(x) 0.16 0.19 0.22 0.21 0.12 0.10 | c. 2.36

The owner of a football team claims that the average attendance at games is over 67,800, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 50°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | c. The error of rejecting the claim that the mean temperature equals 50°F when it really does equal 50°F.

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students? | a. 0.0625

Flip a coin twice, create the sample space of possible outcomes. | a. HH HT TH TT

The number of power outages at a nuclear power plant has a Poisson distribution with a mean of 6 outages per year. The probability that there will be exactly 3 power outages in a year is | b. 0.0892

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | c. 1/6

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | d. 0.92

At one college, GPAs are normally distributed with a mean of 2.6 and a standard deviation of 0.4. What percentage of students at the college have a GPA between 2.2 and 3? | c. 68%

When is the correlation coefficient zero? | a. when there is no linear correlation

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed | d. regardless of the shape of the population.

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 26.1 n = 9 α = 0.01 | c. 20.090

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution $$N(\mu, 3300^2).$$ Compute $$P(\overline{X}-\overline{Y} <-2500).$$ | b. 0.0314

Find the mean of thefollowing probability distribution. x 0 1 2 3 4 P(x) 0.19 0.37 0.16 0.26 0.02 | c. 1.55

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | c. bigger than

Find the percentile for the data point. data set: 3 11 8 6 3 3 11 6 3 11 2 11 15 4 9 3 12 8 6 11 data point: 6 | b. 35

Find the critical value or values of x2 based on the given information. H0: σ = 8.0 n = 10 α = 0.01 | d. 1.735, 23.589

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. | d. (17.47, 21.73)

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | b. Retrospective study

If you were constructing a 99% confidence interval of the population mean based on a sample of n=25 where the standard deviation of the sample s = 0.05, the critical value of t will be | b. 2.7969.

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.2 millimeters? | d. 0.65

Suppose that $$X$$ has the probability density function $$f(x)=1.5x^2$$ for $$-1 Chọn một câu trả lời | d. 0.125

Two white mice mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black Create the sample space of possible outcomes. | b. WW, BW

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to warrant rejection of the claim that the mean weight is at least

Flip a coin three times, create the sample space of possible outcomes. | c. HHH HHT HTH HTT THH THT TTH TTT

Find the standard deviation for the given probability distribution. x 0 1 2 3 4 P(x) 0.37 0.05 0.13 0.25 0.20 | a. 1.60

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.2-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.6 ounces. | a. approximately 0

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 4.0 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2.5 and 5.0 minutes to find a parking spot in the library lot. | c. 0.7745

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | b. 221

A psychologist claims that more than 3 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 3 percent when it is actually more than 3 percent.

According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered. | a. 0.044

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | d. 0.3174.

An entomologist writes an article in a scientific journal which claims that fewer than 16 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. |

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | c. descriptive statistics.

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.11 0.27 Democrat 0.25 0.16 Other 0.15 0.06 What is the probability that a Democrat opposes stronger gun control laws? | a. 0.390

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | d. 46 miles

We have created a 95% confidence interval for $$\mu$$ with the result (10, 15). What decision will we make if we test $$H\_0: \mu =16$$ versus $$H\_1: \mu eq 16$$ at $$\alpha= 0.05$$? | b. Reject $$H\_0$$ in favor of $$H\_1$$.

A researcher claims that 62% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.62 H1: p ≠ 0.62

In a binomial distribution with 10 trials, which of the following is true? | a. P(x > 7) = P(x ≥ 8)

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | c. 0.262

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(m, 33002). The distribution of the difference of the sample mean $$\overline{X}$$ - $$\overline{Y}.$$ | a. normal with mean 0 and standard deviation 1347.22

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a two-tailed test. | c. ±1.96

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | b. 0.57

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | b. 8.66

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | d. 0.082085

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | a. 1/9

According to the Center for Disease Control, 41.5% of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | a. 0.12

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | b. equal to

Let $$X$$ be uniformly distributed over [0, 1]. Calculate $$E[X^3]$$. | b. 0.25

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | c. 68%

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | a. 0.526

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? | d. 0.0166

The probability that a house in an urban area will be burglarized is 2%. If 29 houses are randomly selected, what is the probability that none of the houses will be burglarized? | a. 0.557

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | d. 0.0668

Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, and 8, a score of 4 is the | a. mean.

Compute the critical value $$z\_{\alpha/2}$$ that corresponds to a 94% level of confidence. | b. 1.88

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | b. independent but not disjoint.

A test consists of 10 true/false questions. To pass the test a student must answer at least 7 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | a. 0.172

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) Frequency 35-39 1 40-44 3 45-49 5 50-54 11 55-59 7 60-64 7 65-69 1 | b. 53.4

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 13.5 gallons per minute. Find the variance of the distribution. | b. 1.33

Friskie is having her fifth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes. | c. NNR NNN

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household own 2 cars is: | b. 0.69

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $25,000 a year is: | c. 0.12

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, $$\sigma.$$ | d. (2.2, 5.8)

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | c. bigger than

Find the standard deviation for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth. n = 2661; p = 0.63 | d. 24.91

Survey responses of temperatures of the ocean at various depths. which type of data is? | a. Interval

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | c. 0.400

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | d. 89.6

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeter. A random sample of 12 computer chips is taken. What is the standard error for the sample mean? | a. 0.029

Find z if the normal curve area to the right of z is 0.8997. | c. -1.2798

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | a. 76.4

Assume that blood pressure readings are normally distributed with a mean of 124 and a standard deviation of 6.4. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 126. | c. 0.9938

The probability of winning a certain lottery is 1/51949. For people who play 560 times, find the standard deviation for the random variable X, the number of wins. | b. 0.1038

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 100 marbles that has a mean diameter greater than 0.851 cm? | b. 0.1587

Suppose that a number of miles that a car can run before its battery wears out is exponentially distributed with an average value of 10000 miles. If a person desires to take a 5000-mile trip, what is the probability that she will be able to complete her trip without having to replace her car battery? | c. 0.6

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major Frequency Engineering 868 English 2073 Mathematics 2164 Chemistry 318 Physics 856 Liberal Arts 1358 Business 1676 What is the probability that a randomly selected degree is not in Mathematics? | b. 0.768

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | c. 0.6826

LetZ is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | c. 0.2237

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | c. 45.7

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that from two to four become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.034

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that more than 16 ounces is dispensed in a cup. | c. 0.1587

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 33; p = 0.2 | b. 6.6

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 6. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18.6 lb. | a. 0.6730

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is 5 years or more. | d. 0.229790

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | d. 0.19

Assume that the heights of women are normally distributed. A random sample of 20 women have a mean height of 62.5 inches and a standard deviation of 2.5 inches. Construct a 98% confidence interval for the population variance, $$\sigma^2.$$ | c. (3.3, 15.6)

Construct the boxplot for the given data below: 3, 3, 5, 6, 4, 9, 8, 9, 6. | d.

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | c. 1.67

Find the critical value or values of x2 based on the given information. H1: σ ≠ 9.3 n = 28 α = 0.05 | c. 14.573, 43.194

A population of Australian Koala bears has a mean height of 20 inches and a standard deviation of 4 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 20 and 21. | b. 0.4772

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the following table. X(girls) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 P(X) 0.000 0.001 0.006 0.022 0.061 0.122 0.183 0.209 0.183 0.122 0.061 0.022 0.006 0.001 0.000 Find the probability of selecting 9 or more girls. | c. 0.212

The random variableX represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable X. | a. mean: 1.50; standard deviation: 0.87

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.45 ounces of soda. Every can that has more than 12.45 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | c. 0.1587

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,825 hours. | a. 0.1056

A psychologist claims that more than 6.3 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 6.3% H1: p > 6.3%

A major videocassette rental chain is considering opening a new store in an area that currently does not have any such stores. The chain will open if there is evidence that more than 25% households in the area are equipped with videocassette recorders (VCRs). It conducts a telephone poll of 300 randomly selected households in the area and finds that 96 have VCRs. The value of the test statistic in this problem is approximately equal to | c. 2.80

Which of the following is a discrete quantitative variable? | d. The number of employees of an insurance company

Suppose that the probability that a particular brand of light bulb fails before 900 hours of use is 0.2. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 900 hours or more? | b. 0.992

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 49, σ = 12.3, and the original population is not normally distributed. | a. Yes

Which of the following is a continuous quantitative variable? | d. The amount of milk produced by a cow in one 24-hour period

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, $$\overline{x} = 101,$$ s = 15.3. The sample data appear to come from a population with a distribution that is very far from normal, and σ is unknown. | b. Neither

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.10. | a. 37.3

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at least one head? | a. 7/8

The owner of a football team claims that the average attendance at games is over 60,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 60,000, when it is actually greater than 60,000.

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | a. 2.5

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 50 individuals resulted in an average income of $15000. What is the width of the 90% confidence interval? | d. $465.23

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a right-tailed test. | b. +1.34

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | c. i) and iv)

An entomologist writes an article in a scientific journal which claims that fewer than 11 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.0011 H1: p < 0.0011

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | d. 0.59 ± 0.068

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | a. number of items - discrete; total time - continuous

An airline reports that it has been experiencing a 15% rate of no-shows on advanced reservations. Among 150 advanced reservations, find the probability that there will be fewer than 20 no-shows. | c. 0.251

The name of each contestant is written on a separate card, the cards are placed in a bag, and three names are picked from the bag. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | c. Random

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. |

A random sample of 40 students has a mean annual earnings of $3120 and a population standard deviation of $677. Construct the confidence interval for the population mean, μ. Use a 95% confidence level. | c. ($2910, $3330)

An economist is interested in studying the incomes of consumers in a particular region. The normally population standard deviation is known to be $1000. What total sample size would the economist need to use for a 95% confidence interval if the width of the interval should not be more than $100? Let $$z\_{0.025}=1.96; z\_{0.05}=1.65$$. | a. n = 1537

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | a. 0.254811

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. | c. 0.1469

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | c. 0.8

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 90\% confidence interval to estimate the true proportion of students who receive financial aid. Let $$z\_{0.1}=1.28;z\_{0.05}=1.65$$. | c. (0.533; 0.647)

To determine the mean of a binomial distribution, it is necessary to know the number of successes involved in the problem. | a. False

Which of the following is always true for a normal distribution? | b. P(2< x ≤ 8) = P(2 ≤ x < 8)

Find the normal-curve area between z = -1.48 and z = 0. | d. 0.4306

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that at least one chocolate bar was eaten. | a. 5/9

A study of 1000 randomly selected flights of a major airline showed that 782 of the flights arrived on time. What is the probability of a flight arriving on time? | a. 391/500

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | c. 1.96%

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation? | c. 12

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 1900 miles. What is the probability a certain tire of this brand will last between 56,010 miles and 56,580 miles? | b. 0.0180

According to a 2007 report published by the National Center on Addiction and Substance Abuse at Columbia University, 59% of teens have family dinners five or more times a week, 13% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.64. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | b. 0.08

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: σ = 14.7 H1: σ < 14.7

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | b. binomial distribution.

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | d. {0, 1, 2}

If we are using the normal approximation to determine the probability of at most 28 successes in a binomial distribution P(x ≤ 28) the normal distribution probability that is used to make the estimate is | a. P(x ≤ 28.5).

The use of the Poisson distribution requires a value n which indicates a definite number of independent trials. | a. False

The process of using sample statistics to draw conclusions about true population parameters is called | d. statistical inference.

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 65% with a standard deviation of 7.1. Assuming that the distribution is normal, what percentage of states had between 50 and 70 percent of it's voting-age population who were registered to vote? | a. 0.74

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | c. Observation study

According to a college survey, 22% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 16. | d. 3.52

The following table contains the probability distribution for X = the number of traffic accidents reported in a day in Hanoi. X 0 1 2 3 4 5 P(X) 0.10 0.20 0.45 0.15 0.05 0.05 The probability of more than 2 accidents is | d. 0.25

A Type II error is committed when | c. we don't reject a null hypothesis that is false.

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 0.52. | b. 0.3015

A company had 80 employees whose salaries are summarized in the frequency distribution below. Find the mean salary. Salary ($) 5,001 – 10,000 10,001-15,000 15,001 – 20,000 20,001 – 25,000 25,001 – 30,000 Employees 16 11 16 10 27 | d.$18,813.00

According to the Center for Disease Control, in 2004, 65.7% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if two randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | d. 0.88

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | c. 0.37 ± .053

Which of the following is not true of statistics? | c. Statistics is used to answer questions with 100% certainty.

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers. | a. (189.5, 194.5)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that between 15 and 18 ounces are dispensed in a cup. | c. 0.1598

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | c. 0.625

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence? | a. 150

The area to the right of z = 1.0 is equal to | a. 0.1587.

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -2.05. | b. 0.0202

Suppose that11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | c. 0.1139

A survey of senior citizens at a doctor's office shows that 52% take blood pressure-lowering medication, 43% take cholesterol-lowering medication, and 5% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | d. 0.90

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 2.2 inches. Construct a 99% confidence interval for the population standard deviation. Let $$\chi\_{0.005,15}^2=32.8;\chi\_{0.995,15}^2=4.6$$. | a. (1.5, 4.0)

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | b. 0.8708

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | d. 0.0577

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $25,000 a year is: | b. 0.48

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | c. 35%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 64, x = 3, p = 0.04 | c. 0.221

Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in Vietnam revealed the following endowments (in millions of dollars) 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. What value will be used as the point estimate for the mean endowment of all private colleges in Vietnam? | a. $180.975

The number of 113 calls in Hanoi, has a Poisson distribution with a mean of 10 calls a day. The probability of seven 113 calls in a day is | b. 0.09

Find the normal-curve area between z = -2 and z = -1. | c. 0.1359

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | a. 0.8805

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 24 and 28. | c. 0.2295

A 99% confidence interval estimate can be interpreted to mean that | a. Both of the above.

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency Number of respondents Never 1020 Less than once a year 302 Once a year 571 Several times a year 502 Once a month 308 Two-three times a month 380 Nearly every week 240 Every week 839 More than once a week 329 What is the probability that a randomly selected respondent attended religious services more than once a year? | a. 0.58

Find z if the normal curve area between 0 and z is 0.4756. | d. 1.9703

The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Hours 5 10 4 6 10 9 Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 3/17 5/17 6/17 2/17 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

Which of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. 7/10

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Find the percentile for the data point. Data set: 51 36 48 75 75 75 49 data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | 1/10

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical Saturday night is distributed according to the density function with . Find the probability that, on a typical Saturday night, you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour between 6:00 and 7:00 p.m. is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.25 to 12.25 gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. 11 15 23 29 19 22 21 20 15 25 17 What is the value of IQR? | 8

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf 15 235 16 889 17 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. 32 37 41 44 46 48 53 55 56 57 59 63 65 66 68 69 70 71 74 74 75 77 78 79 80 82 83 86 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Construct the cumulative frequency distribution that coressponds to the given frequency distribution |

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: 60 61 62 63 64 65 66 68 68 69 70 73 73 74 75 76 76 81 81 82 86 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is between 0.40 and 0.46. Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | Yes, test statistic =

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A random sample of n = 25 observations was made on the time to failure of an electronic component and the temperature in the application environment in which the component was used. Given that = 0.4, = 1.50, se()= 7.68, se()= 12.4. What is the value of th e test statistic for testing H0: ? | b. 0.04

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x 15 21 16 30 y 67 80 85 78 | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y 30 40 90 100 Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 100 90 What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication of no linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

.58

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 120 90 What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, \sigma, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, \sigma. Assume the data are normally distributed. | ($0.96, $1.79)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H1: p >16%

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 49, σ = 12.3, s = 8.72 and the original population is not normally distributed. | Yes, test statistic = (\bar x - \mu)/(\sigma/\sqrt n)

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at least 1 in one thousand when it really is at least 1 in one thousand.

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | Positive correlation

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: \hat y = 50,000 + 7x. This implies that: | an increase of $1 in advertising is expected to result in an increase of $7000 in sales.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | 0.73

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: | -0.76

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: | 23.46

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. | 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing H\_0:\beta\_0=1 | 0.07

A group of 65 randomly selected students has a mean age of 20.5 years with a population standard deviation of 2.7. Construct a 98% confidence interval for the population mean. | (19.7, 21.3)

Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.717

A batch contains 36 bacteria cells, in which 12 are not capable of cellular replication. Suppose you examine 7 bacteria cells selected at random, without replacement. What is the probability that exactly 3 of them are not capable of cellular replication? |0.28

The probability of a successful optical alignment in the assembly of an optical data storage product is 0.7. Assume the trials are independent. What is the probability that the first successful alignment requires exactly 4 trials?| 0.019

The probability of a successful optical alignment in the assembly of an optical data storage product is 0.7. Assume the trials are independent. What is the probability that the first **two** successful alignments require exactly 4 trials?| 0.132

A batch contains 36 bacteria cells, in which 12 are not capable of cellular replication. Suppose you examine 7 bacteria cells selected at random, without replacement. What is the probability that exactly 3 of them are capable of cellular replication?|  0.12

Find the mean of the following probability distribution.| 1.55

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 2 | 3 | 4 |
| *P*(*x*) | 0.19 | 0.37 | 0.16 | 0.26 | 0.02 |

A manufacturer records the number of errors each work station makes during the week. The data are as follows. 6 3 2 3 5 2 0 2 5 4 2 0 1 Construct the dot plot for the given data. 0 5 10| 0 2(.) 1 1(.) 2 4(.) 3 2(.) 4 1(.) 5 2(.) 6 1(.)

Use the given paired data to construct a scatterplot. x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32 y 0.44 0.56 -0.04 0.52 -0.68 0.9 0.88 0.19 | 6 (.) Oxy+ , 1 (.) Ox+y- , 1(.) Oxy-

Use the data to create a stemplot. The midterm test scores for the seventh-period typing class are listed below. 85 77 93 91 74 65 68 97 88 59 74 83 85 72 63 79 | 5-9 6-358 7-24479 8-3558 9-137

**Solve the problem.**At the National Criminologists Association's annual convention, participants filled out a questionnaire asking what they thought was the most important cause for criminal behavior. The tally was as follows. Cause – Frequency , education – 19.5 , drugs – 58.5 , family – 39 , poverty – 68.25 , other – 9.75 | .10 .20 .30 .40 poverty .35 drugs .30 family .20 education .10 other .05

After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution.Excellent: 160, Good: 400, Fair: 240 Construct a pie chart representing the given data set. | Excellent 20% - Good 50% , Fair 30%

Use the given paired data to construct a scatterplot. x 1 -3 -3 -2 3 5 -1 8 -4 -1 y -4 -6 -7 2 3 3 -6 3 -3 -3 | 3 (.) Oxy+ , 1 (.) Ox-y+ , 1 (.) Ox+y- , 5(.) Oxy-

**Use the data to create a stemplot.**The attendance counts for this season's basketball games are listed below.227 239 215 219 221 233 229 233 235 228 245 231 | 21 - 5, 9 22 - 1, 7, 8, 9 23 - 1, 3, 3, 5, 9 24 - 5

A researcher claims that more than 62% of voters favor gun control. Assume that a hypothesis [test](http://cms.fpt.edu.vn/elearning/mod/quiz/view.php?id=106687) of the given claim will be conducted. Identify the type II error for the [test](http://cms.fpt.edu.vn/elearning/mod/quiz/view.php?id=106687). | The error of failing to reject the claim that the proportion favoring gun control is at most 62% when it is actually more than 62%.

**Use the given paired data to construct a scatterplot.**x -6 7 7 7 5 6 2 -1 -6 y 2 7 11 8 9 11 6 3 2 | 6 Oxy+ , 2 Ox-y+

Find the critical value or values of [\chi^2](http://cms.fpt.edu.vn/elearning/filter/tex/displaytex.php?texexp=\chi%5e2) based on the given information.H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

Let Z is a standard normal variable, find the probability that Z lies between -2.41 and 0.| 0.4920

Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) [3/17](x-apple-data-detectors://184) [5/17](x-apple-data-detectors://185) [6/17](x-apple-data-detectors://186) [2/17](x-apple-data-detectors://187) 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart | a.

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

TWhich of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. [7/10](x-apple-data-detectors://249)

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

TIf a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

Find the origin data from the sterm-and-leaf plot Stem (Leaves) 8 (5 8) 9 (1 8) 10 (5 5) | a.85,88,91,98,105,105

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

A car dealer is deciding what kinds of vehicles he should order from the factory. He looks at his sales report for the preceding period. Choose the vertical scale so that the relative frequencies are represented. Vehicle (Sales) Economy (32) Sports (8) Family (56) Luxury (16) Truck (48) | Bieu do .4 .3 .2 .1 – Family 0.35 Truck 0.3 Economy 0.2 Luxury 0.1 Sports 0.05

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Find the percentile for the data point. Data set: [51 36 48 75 75 75 49](tel:51%2036%2048%2075%2075%2075%2049) data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | [1/10](x-apple-data-detectors://303)

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.950

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between [8-11:00 am on Saturday](x-apple-data-detectors://307) mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.169

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

| 1.55

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical [Saturday night](x-apple-data-detectors://355) is distributed according to the density function with . Find the probability that, on a typical [Saturday night](x-apple-data-detectors://356), you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

Let X be a continuous random variable with probability density function defined by Find the mean of X | 1/2

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

| 2.46

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

Suppose that X has a discrete uniform distribution on the integers 20 to 79. Which of the followings are true? (i) P(X > 41) = 13/20 (ii) E(10X)= 495 | Both (i) and (ii)

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour [between 6:00 and 7:00 p.m.](x-apple-data-detectors://410) is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the probability that the number favoring the substation is more than 12? | 0.6482

LetZ is a standard normal variable, find the the probability that Z lies [between 0 and 3.01](x-apple-data-detectors://412). | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval [9.25 to 12.25](x-apple-data-detectors://443) gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

Solve the problem. At the National Criminologists Association's annual convention, participants filled out a questionnaire asking what they thought was the most important cause for criminal behavior. The tally was as follows. Make a Pareto chart to display these findings. |

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Use the given paired data to construct a scatterplot. x -6 7 7 7 5 6 2 -1 -6 y 2 [7 11 8 9 11 6 3 2](tel:7%2011%208%209%2011%206%203%202) |

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 26 minutes and a standard deviation of 3 minutes. A random sample of 30 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows. 0 2 3 4 2 3 4 6 7 2 3 4 6 9 8 Construct the dot plot for the given data. |

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

Use the data to create a stemplot. The following data show the number of laps run by each participant in a marathon. [46 65 55 43 51 48 57](tel:46%2065%2055%2043%2051%2048%2057) 30 43 49 32 56 |

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. [11 15 23 29 19 22 21](tel:11%2015%2023%2029%2019%2022%2021) 20 15 25 17 What is the value of IQR? | 8

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart |

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Use the given paired data to construct a scatterplot. x 1 -3 -3 -2 3 5 -1 8 -4 -1 y -4 -6 -7 2 3 3 -6 3 -3 -3 |

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf [15 235 16 889 17](tel:15%20235%2016%20889%2017) 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. [32 37 41 44 46 48 53](tel:32%2037%2041%2044%2046%2048%2053) [55 56 57 59 63 65 66](tel:55%2056%2057%2059%2063%2065%2066) [68 69 70 71 74 74 75](tel:68%2069%2070%2071%2074%2074%2075) [77 78 79 80 82 83 86](tel:77%2078%2079%2080%2082%2083%2086) 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

A store manager counts the number of customers who make a purchase in his store each day. The data are as follows. [10 11 8 14 7 10 10 11](tel:10%2011%208%2014%207%2010%2010%2011) 8 7 Construct the dot plot for the given data. |

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

Use the data to create a stemplot. The attendance counts for this season's basketball games are listed below. [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 |

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

Use the given paired data to construct a scatterplot. x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32 y 0.44 [0.56 -0.04](x-apple-data-detectors://500) 0.52 -0.68 0.9 0.88 0.19 |

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution. Excellent: 160, Good: 400, Fair: 240 Construct a pie chart representing the given data set. |

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

Use the data to create a stemplot. The midterm test scores for the seventh-period typing class are listed below. [85 77 93 91 74 65 68](tel:85%2077%2093%2091%2074%2065%2068) [97 88 59 74 83 85 72](tel:97%2088%2059%2074%2083%2085%2072) 63 79 |

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Construct the cumulative frequency distribution that coressponds to the given frequency distribution |

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A manufacturer records the number of errors each work station makes during the week. The data are as follows. 6 3 2 3 5 2 0 2 5 4 2 0 1 Construct the dot plot for the given data. |

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: [60 61 62 63 64 65 66](tel:60%2061%2062%2063%2064%2065%2066) [68 68 69 70 73 73 74](tel:68%2068%2069%2070%2073%2073%2074) [75 76 76 81 81 82 86](tel:75%2076%2076%2081%2081%2082%2086) 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data [53 52 75 62 68 58 49](tel:53%2052%2075%2062%2068%2058%2049) 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is [between 0.40 and 0.46](x-apple-data-detectors://596). Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 49, σ = 12.3, s = 8.72and the original population is not normally distributed. | Yes, test statistic =

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) [10 12 13 17](tel:10%2012%2013%2017) Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x [15 21 16 30](tel:15%2021%2016%2030) y [67 80 85 78](tel:67%2080%2085%2078) | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y [30 40 90 100](tel:30%2040%2090%20100) Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y [85 80 75 79 82 79 80](tel:85%2080%2075%2079%2082%2079%2080) Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x [50 62 67 55](tel:50%2062%2067%2055) Pressure, y [90 110 100 90](tel:90%20110%20100%2090) What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) [10 12 13 17](tel:10%2012%2013%2017) Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y [85 80 75 79 82 79 80](tel:85%2080%2075%2079%2082%2079%2080) Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x [50 62 67 55](tel:50%2062%2067%2055) Pressure, y [90 110 120 90](tel:90%20110%20120%2090) What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | Observation study

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | 2, 4, 6, 8, 10

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | 0.117

Pick a bit string from the set of all bit strings of length 10. Find the probability of getting a bit string that begins and ends with 0. | 1/4

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | 0.22

A pair of dice is thrown twice. What is the probability of getting totals of 7 and 11? | 1/54

Given events E and F with probabilities P(E) = 0.65 and P(F) = 0.19, are E and F mutually exclusive? | cannot be determined

Which of the following is a discrete random variable? | The number of eggs that hens lay in a month

Suppose that 11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1139

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | 1.67

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | 45.7

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.19. (ii) The probability of the event that the code has at least 7 letters is 0.5 | (i) only

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | 0.1210

In a manufacturing process that laminates several ceramic layers, 2% of the assemblies are defective. Assume that the assemblies are independent. What is the mean number of assemblies that need to be checked to obtain five defective assemblies? | 250

Printed circuit cards are placed in a functional test after being populated with semiconductor chips. A lot contains 40 cards, and a sample of 3 are selected at random without replacement for functional testing. If 5 cards are defective, what is the probability that all cards in the sample are defective? | 0.001

(See picture) [file:1968.jpg] | (i)

(See picture) [file:1979.jpg] | 0.61

(See picture) [file:1986.jpg] | 8

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

A multiple-choice quiz has 20 questions each with 4 possible answers of which only 1 is the correct answer. What is the probability that sheer guesswork yields 4 correct answers for 5 of the 20 problems about which the student has no knowledge? | 0.0146

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | 0.082085

Suppose that a qualitative variable has three categories with frequencies of occurrence shown in the table. When constructing a pie chart, what is the size of the angle for class A? [file:3558.jpg] | (ii)

[file:3579.jpg] | 598, 600, 602, 604, 605

The heights (in inches) of 20 adult males are listed below. [70 72 71 70 69 73 69](tel:70%2072%2071%2070%2069%2073%2069) [68 70 71 67 71 70 74](tel:68%2070%2071%2067%2071%2070%2074) 69 68 71 71 71 72 Find the range of the data set. | 7

The standard error of the population proportion will become larger | as population proportion approaches 0.50.

A random sample of size n = 16 is taken from a normal population with mean 40 and variance 5. The distribution of the sample mean is | normal with mean 40 and variance [5/16](x-apple-data-detectors://784).

A normal population has mean 76 and variance 9. How large must be the random sample be if we want the standard error of the sample mean to be 1.1? | 8

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. [file:2187.jpg] | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. [file:2195.jpg] | (189.5, 194.5)

(See picture) [file:2212.jpg] | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. [file:2225.jpg] | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? [file:2235.jpg] | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? [file:2232.jpg] | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

[file:3641.jpg] | (ii)

(See picture) [file:2252.jpg] | Reject the null hypothesis

[file:3649.jpg] | (ii)

(See picture) [file:2255.jpg] | to = -1.98, fail to reject Ho

(See picture) [file:2259.jpg] | 29.07

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:2271.jpg] | (iv)

(See picture) [file:3700.jpg] | 3.000

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

When products and processes are designed and developed with designed experiments, they enjoy | All of the others

Which statement is true? | Probability models quantify the risks involved in decisions made every day

Test for the significance of regression H0:B1 = B1.0 H1: B1 != B1.0 We would reject H0 if \_ (i) [t0] > t(n/2x-1) (ii) [t0] < t(n/2x – 2) (iii) [t0] < t(n/2x – 1) (iv) [t0] > t(n/2x – 2) | (iv)

How many baseball teams of nine members can be chosen from among twelve boys, without regard to the position played by each member? | 220

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | 0.172

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

For each of the following pairs of events, which are subsets of the set of all possible outcomes when a coin is tossed three times, choose the pair(s) is (are) independent. | All of the others

An electronic scale that displays weights to the nearest pound is used to weigh packages. The display shows only three digits. Any weight greater than the display can indicate is shown as 999. The random variable X is the displayed weight. What is the number of member in the sample space of X? | 1,000

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 2.5

Suppose that X has a discrete uniform distribution on the integers 1 to 15. Find 3V(X). | 56

Assume that a procedure yields a binomial distribution with a trial repeated n = 4 times. Use the binomial probability formula to find the probability of x=3 successes given the probability p=1/6 of success on a single trial. | 0.0154

In a certain manufacturing process it is known that, on the average, 1 in every 100 items is defective. What is the probability that the fifth item inspected is the first defective item found. | 0.0096

A naturalist leads whale watch trips every morning in March. The number of whales seen has a Poisson distribution with a mean of 4.3. Find the probability that on a randomly selected trip, the number of whales seen is 3. | 0.1798

The probability density function of the time required to complete an assembly operation is f(x)= 0.1 for 20≤ x ≤ 30 seconds. Determine the proportion of assemblies that requires more than 25 seconds to complete. | 0.50

(See picture) [file:1983.jpg] | 0.135

(See picture) [file:1989.jpg] | 5.76

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | 0.0668

(See picture) [file:2084.jpg] | (i)

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.367879

(See picture) [file:2112.jpg] | (iv)

Find the sample standard deviation. 15 42 53 | 19.6

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed... | if the shape of the population is normally distributed.

(See picture) [file:2162.jpg] | 0.4562

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.8767

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. [file:2188.jpg] | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. [file:2201.jpg] | (3.41, 5.99)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. [file:2222.jpg] | 217

(See picture) [file:2228.jpg] | 0.59 ± 0.068

(See picture) [file:2245.jpg] | (iii)

(See picture) [file:2247.jpg] | 0.0027

(See picture) [file:2258.jpg] | 9.209

[file:3656.jpg] | 16.875

(See picture) [file:2264.jpg] | (iii)

(See picture) [file:2268.jpg] | (i)

(See picture) [file:3698.jpg] | 2.552

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. [file:2287.jpg] | 0.98

(See picture) [file:3690.jpg] | 0.948

The peak shopping time at home improvement store is between [8-11:00 am on Saturday](x-apple-data-detectors://807) mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | Number of items - discrete; total time - continuous

What is a method of collecting data? | A retrospective study using historical data

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

Flip a coin twice, create the sample space of possible outcomes. (Below, H stands for Head, T stands for Tail) | HH HT TH TT

A single six-sided die is rolled. Find the probability of rolling a number less than 3. | 0.333

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.19

(See picture) [file:1867.jpg] | disjoint but not independent.

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | 15.6

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | 1.55

Let the random variable X have a discrete uniform distribution on the interval [1, 35]. Determine the mean and variance of X. | 18 and 102

Find the mean for the binomial distribution which has the stated values of n=20 and p=0.6. Round answer to the nearest tenth. | 12.0

The probability of a successful optical alignment in the assembly of an optical data storage product is 0.8. Assume the trials are independent. What is the probability that the first successful alignment requires exactly four trials? | 0.0064

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 1.52

(See picture) [file:1973.jpg] | 1.25

(See picture) [file:1982.jpg] | 0

Let X be a continuous random with f(x) is probability density function. Which the following statement(s) is (are) TRUE? | All of them

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

Assume that X has a normal distribution with the mean is µ= 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1 | 0.1587

(See picture) [file:2084.jpg] | (i)

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.254811

Find the mode for the sample composed of the observations 4, 5, 6, 6, 6, 7, 7, 8, 8, 5. | 6

(See picture) [file:2112.jpg] | (iv)

Which of the following is an acceptable format for setting up class boundaries for a frequency distribution? | All of the other choices is correct

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

The heights of people in a certain population are normally distributed with a mean of 64 inches and a standard deviation of 3.1 inches. Determine the sampling distribution of the mean for samples of size 39. | Normal, mean = 64 inches, standard deviation = 0.5 inches

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed... | regardless of the shape of the population.

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. [file:2194.jpg] | (21.1, 23.7)

(4335) (11081) [file:2182.jpg] | [765, 795]

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. [file:2211.jpg] | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). [file:2224.jpg] | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? [file:2241.jpg] | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

(See picture) [file:2246.jpg] | (iv)

(See picture) [file:2253.jpg] | Test statistic z = -8.43. There is sufficient evidence to warrant rejection of the claim that the population mean temperature is 22 degree C.

[file:3646.jpg] | (ii)

(See picture) [file:2258.jpg] | 9.209

(See picture) [file:2257.jpg] | 14.573, 43.194

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:3694.jpg] | -0.93

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. | (189.5, 194.5)

(See picture) | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. | (3.41, 5.99)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | 217

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. | 0.98

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | (21.1, 23.7)

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference|In repeated sampling, 95% of the intervals constructed would contain the population mean.

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed...|if the shape of the population is normally distributed.

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed.|regardless of the shape of the population.

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent. The distribution of $$\overline{X} $$- $$\overline{Y}$$ is | b. normal with mean 0 and standard deviation 5/6.

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | a. 2.6

Survey responses of “ good, better, best”. which type of data is? | c. Ordinal

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 20; p = 3/5 | c. 12.0

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. | a. 0.1587

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean temperature is different from 45°F

A bag of colored candies contains 20 red, 25 yellow, and 35 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | b. {red, yellow, orange}

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | c. 0.036

The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $$\mu= 110$$ grams and $$\sigma = 25$$ grams. A sample of vitamins is to be selected. What is the probability that the sample mean will be less than 100 grams? Let $$P(Z<-2)=0.023;P(Z<-0.4)=0.421;P(Z<0.07)=0.529;P(Z<0.75)=0.673$$. | a. 0.023

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the expected number of wins for the player? | c. 2.31

Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children’s clothing should be manufactured and marketed in larger sizes. If $$X$$ is the weight of school children sampled in a nationwide study, then $$X$$ is an example of | d. a continuous random variable.

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | d. 1.55

Find the critical value or values of x2 based on the given information. H1: σ < 0.629 n = 19 α = 0.025 | b. 8.231

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. What is the probability that a randomly chosen widget produced by the company is defective? | d. 0.1175

The grade point averages for 10 randomly selected students are listed below. Construct a 90% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 | b. (0.81, 1.83)

For large numbers of degrees of freedom, the critical χ2 values can be approximated as follows: χ2 = (z + )2, where k is the number of degrees of freedom and z is the critical value. To find the lower critical value, the negative z-value is used, to find the upper critical value, the positive z-value is used. Use this approximation to estimate the critical value of χ2 in a right-tailed hypothesis test with n =125 and α = 0.01. | a. χ2 ≈ 162.833

Which statement is true for the scores of 1, 2, 3, 4, 5, 5, 7, 8, 9, and 10? | a. The mean is greater than the median.

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | c. parking times of the 130 students

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | a. 1.52

The standard IQ test has a mean of 96 and a standard deviation of 14. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | d. 34

An archer is able to hit the bull's-eye 55% of the time. If she shoots 8 arrows, what is the probability that she gets exactly 4 bull's-eyes? Assume each shot is independent of the others. | a. 0.2627

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | a. 0.7557

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.09 0.26 Democrat 0.22 0.2 Other 0.11 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | c. 0.214

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25,$$\overline{x} = 951,$$ s = 25. The sample data appear to come from a normally distributed population with σ = 28. | a. Normal

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | a. 0.89

Find the variance for the given probability distribution. x 0 1 2 3 4 P(x) 0.17 0.28 0.05 0.15 0.35 | d. 2.46

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 5.0 gallons and 6.0 gallons are pumped during a randomly selected minute. | d. 0.33

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $700 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $550. | d. 0.0013

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | c. 0.1210

The probability that a student at a certain college is male is 0.45. The probability that a student at that college has a job off campus is 0.33. The probability that a student at the college is male and has a job off campus is 0.15. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | b. 0.63

Let P(A) = 0.7, P(B) = 0.2. What is P(B U nguoc A’) if A and B are independent? | 0.06

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ < 0.14 n = 23 α = 0.10 | a. 14.042

The probabilities that a customer entering a particular bookstore buys 0, 1, 2, 3, 4, or 5 books are 0.30, 0.20, 0.20, 0.15, 0.10, and 0.05 respectively. For the probability distribution above, find the variance. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. 0.095089

A psychologist claims that more than 75 percent of the population suffers from professional problems due to extreme shyness. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to support the claim that the true proportion is greater than 75 percent.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | c. {2, 4, 6, 8, 10}

When conducting a t test for the correlation coefficient in a study with 16 individuals, the degrees of freedom will be | d. 14.

Suppose that $$X$$ is a negative binomial random variable with $$p = 0.2$$ and $$r = 4$$. Determine $$P(X=20)$$. | a. 0.0436

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. How many citizens would need to be sampled if a 95% confidence interval was desired to estimate the true proportion to within 5%? | a. 379

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2 and 12 minutes to park in the library lot. | d. 0.556744

A local bank needs information concerning the checking account balances of its customers. A random sample of 15 accounts was checked. The mean balance was $686.75 with a standard deviation of $256.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | d. ($513.17, $860.33)

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | b. 0.343

When considering area under the standard normal curve, decide whether the area to the left ofz =0.2is bigger than, smaller than, or equal to the area to the right ofz = -0.2 | c. equal to

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 11.5 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.5 gallons per minute? | a. 0.50

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | d. 98

If you were constructing a 99% confidence interval of the normal population mean based on a sample of $$n = 25$$ where the standard deviation of the sample $$s = 0.05$$. What is the critical value? Let $$t\_{0.005,24}=2.7969;t\_{0.01,24}=2.4922;z\_{0.01}=2.33; z\_{0.05}=2.58$$. | a. 2.7969

One year, professional sports players salaries averaged $1.5 million with a standard deviation of $0.7 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.1 million. | d. approximately 1

A random number generator is set top generate integer random numbers between 1 and 10 inclusive following a uniform distribution. What is the probability of the random number generator generating a 7? | c. [1/10](x-apple-data-detectors://901)

The probability is 0.7 that a person shopping at a certain store will spend less than $20. For random samples of 28 customers, find the mean number of shoppers who spend less than $20. | c. 19.6

According to a college survey, 22% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 16. | b. 1.66

Construct the cumulative frequency distribution that coressponds to the given frequency distribution | d.

A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? | a. 0.2503

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve to the right of 64. | d. 0.2525

In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, $$\sigma,$$ is 2.4. Construct the 95% confidence interval for the population mean. | b. (61.9, 64.9)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | a. descriptive statistics.

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces. | c. 7

Police estimate that 25% of drivers drive without their seat belts. If they stop 6 drivers at random, find the probability that all of them are wearing their seat belts. | a. 0.178

LetZ is a standard normal variable, find the the probability that Z lies [between 0 and 3.01](x-apple-data-detectors://907). | a. 0.4987

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 14 H1: μ < 14

A business venture can result in the following outcomes (with their corresponding chance of occurring in parentheses) Highly Successful (10%), Successful (25%), Break Even (25%), Disappointing (20%), and Highly Disappointing (?). If these are the only outcomes possible for the business venture, what is the chance that the business venture will be considered Highly Disappointing? | a. 20%

A researcher claims that 62% of voters favor gun control. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | gun control is 62% when it is actually different than 62%.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | d. all custormers

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $900 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $775.00 and $990.00? | c. .9579

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | c. 31.74%

In a random sample of 60 computers, the mean repair cost was $150 with a population standard deviation of $36. Construct a 99% confidence interval for the population mean. | b. ($138, $162)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 19 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8 years. | d. (19.9, 24.9)

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 647 drowning deaths of children with 30% of them attributable to beaches. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$. | d. 2.94

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | c. 99.7%

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1100 kWh and 1225 kWh. | c. 0.1971

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 2% using 99% reliability? | c. 4118

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of the seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the standard deviation is less than 14.7.

Suppose x is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | b. 0.7

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, $$\sigma^2.$$ Assume the data are normally distributed | a. (3.2, 26.3)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the number of ounces above which 80% of the dispensed sodas will fall. | c. 8.6

Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 30 H1: μ > 30

Which of the following is not true about the standard normal distribution? | b. The area under the standard normal curve to the left of z = 0 is negative.

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that at least two become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | b. 0.04

The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? | d. 0.4013

Both Fred and Ed have a bag of candy containing a lemon drop, a cherry drop, and a lollipop. Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | b. LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Using Excel to find three quartiles for the given data below: 1, 3, 6, 10, 15, 21, 28, 36. | b. 5.25, 12.5, 22.75

If the probability of a newborn child being female is 0.5, find the probability that in 100 births, 55 or more will be female. | b. 0.1841

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n =12, x = 5, p = 0.25 | d. 0.103

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $3.60 $4.50 $2.80 $6.30 $2.60 $5.20 $6.75 $4.25 $8.00 $3.00 Find the 95% confidence interval for the true mean. | b. ($3.39, $6.01)

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be "95% confident" in an inference. | c. In repeated sampling, 95% of the intervals constructed would contain the population mean.

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean. 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | d. 16

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 1.43. | c. 0.0764

The grade point averages for 10 randomly selected students in a statistics class with 125 students are listed below. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 What is the effect on the width of the confidence interval if the sample size is increased to 20? | b. The width decreases.

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 42.8 3 21.1 4 19.2 5 11.6 6 3.3 7+ 2.0 A family is selected at random. Find the probability that the size of the family is 4 or more. Round your result to three decimal places. | d. 0.361

Which of the following is true about the sampling distribution of the sample mean? | a. The mean of the sampling distribution is always μ.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 16 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. | c. (628.5, 661.5)

Survey responses of nationalities of survey respondents. which type of data is? | a. Nomial

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | d. 84.00%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 4, x = 3, p = 1/6 | a. 0.0154

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -1.83. | c. 0.0336

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | d. 1.23

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x 1 2 3 4 5 6 P(x) 0.16 0.19 0.22 0.21 0.12 0.10 | c. 2.36

The owner of a football team claims that the average attendance at games is over 67,800, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 50°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | c. The error of rejecting the claim that the mean temperature equals 50°F when it really does equal 50°F.

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students? | a. 0.0625

Flip a coin twice, create the sample space of possible outcomes. | a. HH HT TH TT

The number of power outages at a nuclear power plant has a Poisson distribution with a mean of 6 outages per year. The probability that there will be exactly 3 power outages in a year is | b. 0.0892

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | c. 1/6

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | d. 0.92

At one college, GPAs are normally distributed with a mean of 2.6 and a standard deviation of 0.4. What percentage of students at the college have a GPA between 2.2 and 3? | c. 68%

When is the correlation coefficient zero? | a. when there is no linear correlation

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed | d. regardless of the shape of the population.

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 26.1 n = 9 α = 0.01 | c. 20.090

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution $$N(\mu, 3300^2).$$ Compute $$P(\overline{X}-\overline{Y} <-2500).$$ | b. 0.0314

Find the mean of thefollowing probability distribution. x 0 1 2 3 4 P(x) 0.19 0.37 0.16 0.26 0.02 | c. 1.55

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | c. bigger than

Find the percentile for the data point. data set: [3 11 8 6 3 3 11 6 3 11 2](tel:3%2011%208%206%203%203%2011%206%203%2011%202) 11 15 4 9 3 12 8 6 11 data point: 6 | b. 35

Find the critical value or values of x2 based on the given information. H0: σ = 8.0 n = 10 α = 0.01 | d. 1.735, 23.589

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. | d. (17.47, 21.73)

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | b. Retrospective study

If you were constructing a 99% confidence interval of the population mean based on a sample of n=25 where the standard deviation of the sample s = 0.05, the critical value of t will be | b. 2.7969.

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.2 millimeters? | d. 0.65

Suppose that $$X$$ has the probability density function $$f(x)=1.5x^2$$ for $$-1 Chọn một câu trả lời | d. 0.125

Two white mice mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black Create the sample space of possible outcomes. | b. WW, BW

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to warrant rejection of the claim that the mean weight is at least

Flip a coin three times, create the sample space of possible outcomes. | c. HHH HHT HTH HTT THH THT TTH TTT

Find the standard deviation for the given probability distribution. x 0 1 2 3 4 P(x) 0.37 0.05 0.13 0.25 0.20 | a. 1.60

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.2-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.6 ounces. | a. approximately 0

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 4.0 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2.5 and 5.0 minutes to find a parking spot in the library lot. | c. 0.7745

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | b. 221

A psychologist claims that more than 3 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 3 percent when it is actually more than 3 percent.

According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered. | a. 0.044

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | d. 0.3174.

An entomologist writes an article in a scientific journal which claims that fewer than 16 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. |

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | c. descriptive statistics.

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.11 0.27 Democrat 0.25 0.16 Other 0.15 0.06 What is the probability that a Democrat opposes stronger gun control laws? | a. 0.390

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | d. 46 miles

We have created a 95% confidence interval for $$\mu$$ with the result (10, 15). What decision will we make if we test $$H\_0: \mu =16$$ versus $$H\_1: \mu eq 16$$ at $$\alpha= 0.05$$? | b. Reject $$H\_0$$ in favor of $$H\_1$$.

A researcher claims that 62% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.62 H1: p ≠ 0.62

In a binomial distribution with 10 trials, which of the following is true? | a. P(x > 7) = P(x ≥ 8)

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | c. 0.262

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(m, 33002). The distribution of the difference of the sample mean $$\overline{X}$$ - $$\overline{Y}.$$ | a. normal with mean 0 and standard deviation 1347.22

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a two-tailed test. | c. ±1.96

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | b. 0.57

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | b. 8.66

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | d. 0.082085

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | a. 1/9

According to the Center for Disease Control, 41.5% of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | a. 0.12

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | b. equal to

Let $$X$$ be uniformly distributed over [0, 1]. Calculate $$E[X^3]$$. | b. 0.25

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | c. 68%

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | a. 0.526

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? | d. 0.0166

The probability that a house in an urban area will be burglarized is 2%. If 29 houses are randomly selected, what is the probability that none of the houses will be burglarized? | a. 0.557

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | d. 0.0668

Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, and 8, a score of 4 is the | a. mean.

Compute the critical value $$z\_{\alpha/2}$$ that corresponds to a 94% level of confidence. | b. 1.88

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | b. independent but not disjoint.

A test consists of 10 true/false questions. To pass the test a student must answer at least 7 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | a. 0.172

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) Frequency [35-39 1 40-44 3 45-49](tel:35-39%201%2040-44%203%2045-49) [5 50-54 11 55-59 7](tel:5%2050-54%2011%2055-59%207) 60-64 7 65-69 1 | b. 53.4

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 13.5 gallons per minute. Find the variance of the distribution. | b. 1.33

Friskie is having her fifth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes. | c. NNR NNN

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household own 2 cars is: | b. 0.69

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $25,000 a year is: | c. 0.12

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, $$\sigma.$$ | d. (2.2, 5.8)

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | c. bigger than

Find the standard deviation for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth. n = 2661; p = 0.63 | d. 24.91

Survey responses of temperatures of the ocean at various depths. which type of data is? | a. Interval

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | c. 0.400

Find the variance for the given sample data [53 52 75 62 68 58 49](tel:53%2052%2075%2062%2068%2058%2049) 49 | d. 89.6

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeter. A random sample of 12 computer chips is taken. What is the standard error for the sample mean? | a. 0.029

Find z if the normal curve area to the right of z is 0.8997. | c. -1.2798

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | a. 76.4

Assume that blood pressure readings are normally distributed with a mean of 124 and a standard deviation of 6.4. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 126. | c. 0.9938

The probability of winning a certain lottery is 1/51949. For people who play 560 times, find the standard deviation for the random variable X, the number of wins. | b. 0.1038

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 100 marbles that has a mean diameter greater than 0.851 cm? | b. 0.1587

Suppose that a number of miles that a car can run before its battery wears out is exponentially distributed with an average value of 10000 miles. If a person desires to take a 5000-mile trip, what is the probability that she will be able to complete her trip without having to replace her car battery? | c. 0.6

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major Frequency Engineering 868 English 2073 Mathematics 2164 Chemistry 318 Physics 856 Liberal Arts 1358 Business 1676 What is the probability that a randomly selected degree is not in Mathematics? | b. 0.768

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | c. 0.6826

LetZ is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | c. 0.2237

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | c. 45.7

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that from two to four become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.034

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that more than 16 ounces is dispensed in a cup. | c. 0.1587

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 33; p = 0.2 | b. 6.6

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 6. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18.6 lb. | a. 0.6730

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is 5 years or more. | d. 0.229790

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | d. 0.19

Assume that the heights of women are normally distributed. A random sample of 20 women have a mean height of 62.5 inches and a standard deviation of 2.5 inches. Construct a 98% confidence interval for the population variance, $$\sigma^2.$$ | c. (3.3, 15.6)

Construct the boxplot for the given data below: 3, 3, 5, 6, 4, 9, 8, 9, 6. | d.

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | c. 1.67

Find the critical value or values of x2 based on the given information. H1: σ ≠ 9.3 n = 28 α = 0.05 | c. 14.573, 43.194

A population of Australian Koala bears has a mean height of 20 inches and a standard deviation of 4 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 20 and 21. | b. 0.4772

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the following table. X(girls) 0 1 2 3 4 5 6 7 8 [9 10 11 12 13 14](tel:9%2010%2011%2012%2013%2014) P(X) 0.000 0.001 0.006 0.022 0.061 0.122 0.183 0.209 0.183 0.122 0.061 0.022 0.006 0.001 0.000 Find the probability of selecting 9 or more girls. | c. 0.212

The random variableX represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable X. | a. mean: 1.50; standard deviation: 0.87

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.45 ounces of soda. Every can that has more than 12.45 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | c. 0.1587

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,825 hours. | a. 0.1056

A psychologist claims that more than 6.3 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 6.3% H1: p > 6.3%

A major videocassette rental chain is considering opening a new store in an area that currently does not have any such stores. The chain will open if there is evidence that more than 25% households in the area are equipped with videocassette recorders (VCRs). It conducts a telephone poll of 300 randomly selected households in the area and finds that 96 have VCRs. The value of the test statistic in this problem is approximately equal to | c. 2.80

Which of the following is a discrete quantitative variable? | d. The number of employees of an insurance company

Suppose that the probability that a particular brand of light bulb fails before 900 hours of use is 0.2. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 900 hours or more? | b. 0.992

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 49, σ = 12.3, and the original population is not normally distributed. | a. Yes

Which of the following is a continuous quantitative variable? | d. The amount of milk produced by a cow in one 24-hour period

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, $$\overline{x} = 101,$$ s = 15.3. The sample data appear to come from a population with a distribution that is very far from normal, and σ is unknown. | b. Neither

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.10. | a. 37.3

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at least one head? | a. 7/8

The owner of a football team claims that the average attendance at games is over 60,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 60,000, when it is actually greater than 60,000.

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | a. 2.5

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 50 individuals resulted in an average income of $15000. What is the width of the 90% confidence interval? | d. $465.23

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a right-tailed test. | b. +1.34

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | c. i) and iv)

An entomologist writes an article in a scientific journal which claims that fewer than 11 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.0011 H1: p < 0.0011

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | d. 0.59 ± 0.068

The peak shopping time at home improvement store is between [8-11:00 am on Saturday](x-apple-data-detectors://1011) mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | a. number of items - discrete; total time - continuous

An airline reports that it has been experiencing a 15% rate of no-shows on advanced reservations. Among 150 advanced reservations, find the probability that there will be fewer than 20 no-shows. | c. 0.251

The name of each contestant is written on a separate card, the cards are placed in a bag, and three names are picked from the bag. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | c. Random

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. |

A random sample of 40 students has a mean annual earnings of $3120 and a population standard deviation of $677. Construct the confidence interval for the population mean, μ. Use a 95% confidence level. | c. ($2910, $3330)

An economist is interested in studying the incomes of consumers in a particular region. The normally population standard deviation is known to be $1000. What total sample size would the economist need to use for a 95% confidence interval if the width of the interval should not be more than $100? Let $$z\_{0.025}=1.96; z\_{0.05}=1.65$$. | a. n = 1537

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | a. 0.254811

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. | c. 0.1469

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | c. 0.8

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 90\% confidence interval to estimate the true proportion of students who receive financial aid. Let $$z\_{0.1}=1.28;z\_{0.05}=1.65$$. | c. (0.533; 0.647)

To determine the mean of a binomial distribution, it is necessary to know the number of successes involved in the problem. | a. False

Which of the following is always true for a normal distribution? | b. P(2< x ≤ 8) = P(2 ≤ x < 8)

Find the normal-curve area between z = -1.48 and z = 0. | d. 0.4306

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that at least one chocolate bar was eaten. | a. 5/9

A study of 1000 randomly selected flights of a major airline showed that 782 of the flights arrived on time. What is the probability of a flight arriving on time? | a. 391/500

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | c. 1.96%

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation? | c. 12

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 1900 miles. What is the probability a certain tire of this brand will last between 56,010 miles and 56,580 miles? | b. 0.0180

According to a 2007 report published by the National Center on Addiction and Substance Abuse at Columbia University, 59% of teens have family dinners five or more times a week, 13% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.64. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | b. 0.08

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 45.1 3 22.2 4 19.7 5 8.0 6 3.1 7+ 1.9 A family is selected at random. Find the probability that the size of the family is less than 6. Round your result to three decimal places. | c. 0.950

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: σ = 14.7 H1: σ < 14.7

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | b. binomial distribution.

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | d. {0, 1, 2}

The use of the Poisson distribution requires a value n which indicates a definite number of independent trials. | a. False

The process of using sample statistics to draw conclusions about true population parameters is called | d. statistical inference.

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 65% with a standard deviation of 7.1. Assuming that the distribution is normal, what percentage of states had between 50 and 70 percent of it's voting-age population who were registered to vote? | a. 0.74

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | c. Observation study

According to a college survey, 22% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 16. | d. 3.52

The following table contains the probability distribution for X = the number of traffic accidents reported in a day in Hanoi. X 0 1 2 3 4 5 P(X) 0.10 0.20 0.45 0.15 0.05 0.05 The probability of more than 2 accidents is | d. 0.25

A Type II error is committed when | c. we don't reject a null hypothesis that is false.

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 0.52. | b. 0.3015

| d.

According to the Center for Disease Control, in 2004, 65.7% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if two randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | d. 0.88

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | c. 0.37 ± .053

Which of the following is not true of statistics? | c. Statistics is used to answer questions with 100% certainty.

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers. | a. (189.5, 194.5)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that between 15 and 18 ounces are dispensed in a cup. | c. 0.1598

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | c. 0.625

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence? | a. 150

The area to the right of z = 1.0 is equal to | a. 0.1587.

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -2.05. | b. 0.0202

Suppose that11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | c. 0.1139

A survey of senior citizens at a doctor's office shows that 52% take blood pressure-lowering medication, 43% take cholesterol-lowering medication, and 5% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | d. 0.90

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 2.2 inches. Construct a 99% confidence interval for the population standard deviation. Let $$\chi\_{0.005,15}^2=32.8;\chi\_{0.995,15}^2=4.6$$. | a. (1.5, 4.0)

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | b. 0.8708

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | d. 0.0577

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $25,000 a year is: | b. 0.48

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | c. 35%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 64, x = 3, p = 0.04 | c. 0.221

Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in Vietnam revealed the following endowments (in millions of dollars) 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. What value will be used as the point estimate for the mean endowment of all private colleges in Vietnam? | a. $180.975

The number of [113 calls in Hanoi](x-apple-data-detectors://1039), has a Poisson distribution with a mean of 10 calls a day. The probability of seven 113 calls in a day is | b. 0.09

Find the normal-curve area between z = -2 and z = -1. | c. 0.1359

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | a. 0.8805

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 24 and 28. | c. 0.2295

A 99% confidence interval estimate can be interpreted to mean that | a. Both of the above.

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency Number of respondents Never 1020 Less than once a year 302 Once a year 571 Several times a year 502 Once a month 308 Two-three times a month 380 Nearly every week 240 Every week 839 More than once a week 329 What is the probability that a randomly selected respondent attended religious services more than once a year? | a. 0.58

Find z if the normal curve area between 0 and z is 0.4756. | d. 1.9703

The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Hours [5 10 4 6 10 9](tel:5%2010%204%206%2010%209) Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) [3/17](x-apple-data-detectors://1048) [5/17](x-apple-data-detectors://1049) [6/17](x-apple-data-detectors://1050) [2/17](x-apple-data-detectors://1051) 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart | a.

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

Which of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. [7/10](x-apple-data-detectors://1113)

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Find the percentile for the data point. Data set: [51 36 48 75 75 75 49](tel:51%2036%2048%2075%2075%2075%2049) data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | [1/10](x-apple-data-detectors://1167)

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.950

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between [8-11:00 am on Saturday](x-apple-data-detectors://1171) mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.169

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

| 1.55

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical [Saturday night](x-apple-data-detectors://1219) is distributed according to the density function with . Find the probability that, on a typical [Saturday night](x-apple-data-detectors://1220), you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

Let X be a continuous random variable with probability density function defined by Find the mean of X | 1/2

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

| 2.46

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

Suppose that X has a discrete uniform distribution on the integers 20 to 79. Which of the followings are true? (i) P(X > 41) = 13/20 (ii) E(10X)= 495 | Both (i) and (ii)

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour [between 6:00 and 7:00 p.m.](x-apple-data-detectors://1274) is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the probability that the number favoring the substation is more than 12? | 0.6482

LetZ is a standard normal variable, find the the probability that Z lies [between 0 and 3.01](x-apple-data-detectors://1276). | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval [9.25 to 12.25](x-apple-data-detectors://1307) gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

Solve the problem. At the National Criminologists Association's annual convention, participants filled out a questionnaire asking what they thought was the most important cause for criminal behavior. The tally was as follows. Make a Pareto chart to display these findings. |

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Use the given paired data to construct a scatterplot. x -6 7 7 7 5 6 2 -1 -6 y 2 [7 11 8 9 11 6 3 2](tel:7%2011%208%209%2011%206%203%202) |

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 26 minutes and a standard deviation of 3 minutes. A random sample of 30 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows. 0 2 3 4 2 3 4 6 7 2 3 4 6 9 8 Construct the dot plot for the given data. |

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

Use the data to create a stemplot. The following data show the number of laps run by each participant in a marathon. [46 65 55 43 51 48 57](tel:46%2065%2055%2043%2051%2048%2057) 30 43 49 32 56 |

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. [11 15 23 29 19 22 21](tel:11%2015%2023%2029%2019%2022%2021) 20 15 25 17 What is the value of IQR? | 8

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart |

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Use the given paired data to construct a scatterplot. x 1 -3 -3 -2 3 5 -1 8 -4 -1 y -4 -6 -7 2 3 3 -6 3 -3 -3 |

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf [15 235 16 889 17](tel:15%20235%2016%20889%2017) 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. [32 37 41 44 46 48 53](tel:32%2037%2041%2044%2046%2048%2053) [55 56 57 59 63 65 66](tel:55%2056%2057%2059%2063%2065%2066) [68 69 70 71 74 74 75](tel:68%2069%2070%2071%2074%2074%2075) [77 78 79 80 82 83 86](tel:77%2078%2079%2080%2082%2083%2086) 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

A store manager counts the number of customers who make a purchase in his store each day. The data are as follows. [10 11 8 14 7 10 10 11](tel:10%2011%208%2014%207%2010%2010%2011) 8 7 Construct the dot plot for the given data. |

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

Use the data to create a stemplot. The attendance counts for this season's basketball games are listed below. [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 |

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

Use the given paired data to construct a scatterplot. x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32 y 0.44 [0.56 -0.04](x-apple-data-detectors://1364) 0.52 -0.68 0.9 0.88 0.19 |

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution. Excellent: 160, Good: 400, Fair: 240 Construct a pie chart representing the given data set. |

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

Use the data to create a stemplot. The midterm test scores for the seventh-period typing class are listed below. [85 77 93 91 74 65 68](tel:85%2077%2093%2091%2074%2065%2068) [97 88 59 74 83 85 72](tel:97%2088%2059%2074%2083%2085%2072) 63 79 |

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: [227 239 215 219 221](tel:227%20239%20215%20219%20221) [233 229 233 235 228](tel:233%20229%20233%20235%20228) 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Construct the cumulative frequency distribution that coressponds to the given frequency distribution |

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A manufacturer records the number of errors each work station makes during the week. The data are as follows. 6 3 2 3 5 2 0 2 5 4 2 0 1 Construct the dot plot for the given data. |

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: [60 61 62 63 64 65 66](tel:60%2061%2062%2063%2064%2065%2066) [68 68 69 70 73 73 74](tel:68%2068%2069%2070%2073%2073%2074) [75 76 76 81 81 82 86](tel:75%2076%2076%2081%2081%2082%2086) 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data [53 52 75 62 68 58 49](tel:53%2052%2075%2062%2068%2058%2049) 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is [between 0.40 and 0.46](x-apple-data-detectors://1460). Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 49, σ = 12.3, s = 8.72and the original population is not normally distributed. | Yes, test statistic =

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) [10 12 13 17](tel:10%2012%2013%2017) Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x [15 21 16 30](tel:15%2021%2016%2030) y [67 80 85 78](tel:67%2080%2085%2078) | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y [30 40 90 100](tel:30%2040%2090%20100) Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y [85 80 75 79 82 79 80](tel:85%2080%2075%2079%2082%2079%2080) Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x [50 62 67 55](tel:50%2062%2067%2055) Pressure, y [90 110 100 90](tel:90%20110%20100%2090) What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) [10 12 13 17](tel:10%2012%2013%2017) Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y [85 80 75 79 82 79 80](tel:85%2080%2075%2079%2082%2079%2080) Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y [33 41 96 90](tel:33%2041%2096%2090) What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y [118 122 125](tel:118%20122%20125) Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y [30 40 90 120](tel:30%2040%2090%20120) Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x [50 62 67 55](tel:50%2062%2067%2055) Pressure, y [90 110 120 90](tel:90%20110%20120%2090) What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, \sigma, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, \sigma. Assume the data are normally distributed. | ($0.96, $1.79)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H1: p >16%

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at least 1 in one thousand when it really is at least 1 in one thousand.

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | Positive correlation

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: \hat y = 50,000 + 7x. This implies that: | an increase of $1 in advertising is expected to result in an increase of $7000 in sales.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | 0.73

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: | -0.76

A recent study by a major financial investment company was interested in determining whether the annual percentage change in stock price for companies is linearly related to the annual percent change in profits for the company. The following data was determined for 8 randomly selected companies: Based upon this sample information, which of the following is the regression equation? | None

For a random sample of 236 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is the value of the [test](http://cms.fpt.edu.vn/elearning/mod/quiz/view.php?id=106687) statistic? | 2.639

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: | 23.46

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. | 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing H\_0:\beta\_0=1 | 0.07

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference

Which of the following is a continuous quantitative variable?|The amount of milk produced by a cow in one 24-hour period

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is?|Observation study

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment?|{red, yellow, blue, orange}

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans.|0.0096

A family is selected at random. Find the probability that the size of the family is more than 4. Round your result to three decimal places.| 0.169

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. What is the probability that a Democrat opposes stronger gun control laws?| 0.314

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director?|0.585

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D).|0.15

It was found that 60% of the workers were white, 30% were black and 10% are other races. Given that a worker was white, the probability that the worker had claimed bias was 30%. Given that a worker was black, the probability that the worker had claimed bias was 40%. Given that a worker was other race, the probability that the worker had claimed bias was 0%|0.4

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home?|6.30

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds?|0.9920

Suppose that X is a continuous random variable whose probability density function is given by f(x)=C(4x-2x^2),0<x<2 and f(x)=0 for other values of x. What is the value of C?|0.375

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43.|0.7

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295.|0.0762

If X is a normal random variable with µ = 50 and s = 6, then the probability that X is not between 44 and 56 is|0.3174.

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592.|30.81

Suppose that the random variable X has an exponential distribution with ? = 1.5. Find the mean and standard deviation of X.|Mean = 0.67; Standard deviation = 0.67

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive?|35%

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, µ.|($1130, $1270)

Construct a 95% confidence interval for the population mean, µ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2.|(78.93, 86.07)

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53.Construct a 94% upper confidence bound for the population standard deviation|1.06

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test.|(0.14, 0.36)

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence?|202

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025?|About 817

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form.|H0: µ, the average attendance at games, is equal to 79,000 && H1: µ, the average attendance at games, is greater than 79,000

You wish to test the claim that µ > 6 at a level of significance of a = 0.05. Let sample statistics be n = 60, s = 1.4|1.66

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At \alpha = 0.05, compute the value of the test statistic to test the company's claim.|-1.76

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours.|y = 5.67 + .048x.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is:|2.66

binomial distribution|P=nCk\*p^k\*(1-p)^(n-k)

poisson distribution|Mean^k/k!\*e^mean

uniform distribution|f(x)=(x-a)/(b-a)

normally distributed|(f(x,E,V)=1/(X\*sqrt(2pi))\*e^(-(x-V)^2/2V^2)

standard normal distribution|f(x)=1/(X\*sqrt(2pi))\*e^(-x^2/2)

exponential distribution|f(x)=1-e^(-lada\*x)......V=lada

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population?|all custormers

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers?|0.057

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times.|0.1223

For a group of employees at the local video store, the scatter diagram compares the number of days worked per year Yes and the average number of stairs climbedweekly (x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | Positive correlation

Find the value of the linear correlation coefficient r.x 12.3 13.1 7.0 9.7 y 22.1 15.7 7.5 13.2 | 0.844

A sample of 10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: \sum x\_i = 324, \sum y\_i = 393, \sum (x\_i-\bar x)^2 = 1900, \sum (y\_i-\bar y)^2 = 1200, \sum (x\_i-\bar x)(y\_i-\bar y) = 1100.What is the sample correlation coefficient between X and Y? | 0.728

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.12 0.26 Democrat 0.32 0.2 Other 0.13 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | 0.211

The random variable *X* represents the number of credit cards that adults have along with the corresponding probabilities. Find the mean and standard deviation. x 0 1 2 3 4 P(x) 0.05 0.49 0.32 0.07 0.07 | mean: 1.62; standard deviation: 0.95

When an administrator at a local hospital prepares a series of charts and graphs pertaining to the patients that have stayed at the hospital during the past month, she is using which general category of statistical analysis? | Descriptive Statistics

A tire manufacturing company is interested in obtaining data on stopping distances for each of the three main tread types made by the company. The data collection method that would be most likely used in this case would be: | Experiments

Some stores and restaurants have "tell us what you think" cards available for customers. Assuming that angry customers are more likely to take the time to fill these out, this is an example of: | Non-Statistical Sampling

When a survey uses the responses strongly disagree, disagree, neutral, agree, strongly agree, this is an example of: | Ordinal Data

Weekly stock closing prices for IBM would be classified as which of the following? | Time-Series Data

The Maple Grove Hotel manager has collected data on the number of rooms occupied each evening for the past 700 nights. The fewest rooms occupied during that period was 11 and the most was the capacity, 430. Based on this information, which of the following would be reasonable class limits for the first class if the manager wishes to use 8 classes to develop a frequency distribution? | 10 or <65 (430-11)/8 =52.375, 11-1 =10+52.375 =62.375-->65

A histogram is used to display which of the following characteristics for a quantitative variable? | The approximate center of the data - The spread in the data - The shape of the distribution

A bar chart is most likely used to display which of the following? | A nominal level variable - An ordinal level variable

The city counsel has just voted to pass the city's budget for next year. If you were writing a report describing the budget so the citizens could understand how the total tax dollars will be spent, which of the following graphs might be most appropriate? | Pie chart

If a business manager selected a sample of customers and computed the mean income for this sample of customers, she has computed: | a statistic

Consider the following sample data: 25, 11, 6, 4, 2, 17, 9, 6 For these data the median is: | 7.5 (=median(data sample))

A sample of people who have attended a college football game at your university has a mean = 3.2 members in their family. The mode number of family members is 2 and the median number is 2.0. Based on this information: | The distribution is right-skewed

If a data set has 740 values that have been sorted from low to high, which value in the data set will be the 20th percentile? | The average of the 148th and 149th values

The number of days that homes stay on the market before they sell in Houston is bell-shaped with a mean equal to 56 days. Further, 95 percent of all homes are on the market between 40 and 72 days. Based on this information, what is the standard deviation for the number of days that houses stay on the market in Houston? | 8

A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents.Male: A 80; B 20; C 10 Female: A 200; B 70; C 120 Based on these data, the probability that a person in the population will prefer product A can be assessed as: | .56

Harrison Water Sports has three retail outlets: Seattle, Portland, and Phoenix. The Seattle store does 50 percent of the total sales in a year, while the Portland store does 35 percent of the total sales. Further analysis indicates that of the sales in Seattle, 20 percent are in boat accessories. The percentage of boat accessories at the Portland store is 30 and the percentage at the Phoenix store is 25. If a sales dollar is recorded as a boat accessory, the probability that the sale was made at the Portland store is: | slightly greater than 0.43

The Jack In The Box franchise in Bangor, Maine, has determined that the chance a customer will order a soft drink is 0.90. The probability that a customer will order a hamburger is 0.60. The probability that a customer will order french fries is 0.50.  
If a customer places an order, what is the probability that the order will include a soft drink and no fries if these two events are independent? | 0.45

Cramer's Bar and Grille in Dallas can seat 130 people at a time. The manager has been gathering data on the number of minutes a party of four spends in the restaurant from the moment they are seated to when they pay the check. What is the mean number of minutes for a dinner party of four? Number of Minutes Probability 60 0.05 70 0.15 80 0.20 90 0.45 100 0.10 110 0.05 | 85.5

A package delivery service claims that no more than 5 percent of all packages arrive at the address late. Assuming that the conditions for the binomial hold, if a sample of size 10 packages is randomly selected and the 5 percent rate holds, what is the probability that more than 2 packages will be delivered late? | 0.0115

The number of customers who enter a bank is thought to be Poisson distributed with a mean equal to 10 per hour. What are the chances that 2 or 3 customers will arrive in a 15-minute period? | 0.4703

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9

The hypergeometric probability distribution is used rather than the binomial or the Poisson when: | the sampling is performed without replacement from a finite population

The manager of a computer help desk operation has collected enough data to conclude that the distribution of time per call is normally distributed with a mean equal to 8.21 minutes and a standard deviation of 2.14 minutes. What is the probability that three randomly monitored calls will each be completed in 4 minutes or less? | About 0.00001

A recent study showed that the length of time that juries deliberate on a verdict for civil trials is normally distributed with a mean equal to 12.56 hours with a standard deviation of 6.7 hours. Given this information, what is the probability that a deliberation will last between 10 and 15 hours? | Approximately 0.29

It is assumed that the time customers spend in a record store is uniformly distributed between 3 and 12 minutes. Based on this information, what is the probability that a customer will spend more than 9 minutes in the record store? | .33

It is assumed that the time failures for an electronic component are exponentially distributed with a mean of 50 hours between consecutive failures. Based on this information, what is the probability that a randomly selected part will fail in less than 10 hours? | About 0.18

When using the Histogram tool in Excel to construct a frequency distribution and histogram, the bins represent the upper class limits. | True

After developing a frequency distribution for a quantitative variable, a histogram can be developed with the horizontal axis representing the values of the variable and the vertical axis representing the frequency of occurrence in each class or group. | True

Histograms cannot have gaps between the bars, whereas bar charts can have gaps. | True

A common rule of thumb for determining how many classes to use when developing a frequency distribution with classes is: - between 5 and 20 classes. - equal to 0.25 times the number of data values. - at least 10 classes. - no fewer than 6 classes. | Between 5 and 20 classes

To show how the price of a stock has changed over the last 3 months, the best type of chart to use is: a histogram. a line chart. a bar chart. a pie chart. | Line Chart

A major insurance company believes that for drivers between 16 years of age and 60 years of age, the number of accidents per year tends to decrease as age increases. If this is the case, a scatter diagram should show a negative relationship between the two variables. | True

A scatter diagram can show whether a pair of variables has a strong or weak relationship, and also whether it is linear or curved. | True

Bar charts can typically be formed with the bars vertical or horizontal without adversely affecting the interpretation. | True

When a histogram is constructed for discrete numerical data, there should be spaces between the bars of the histogram. | False

A histogram can be constructed for data that are either quantitative or qualitative. | False

If a scatter diagram shows points that are reasonably aligned and are sloping downward from left to right, this implies that there is a negative linear relationship between the two variables. | True

To show the relationship between amount of rainfall and the number of car accidents, the best type of graph to use is a scatter diagram. | True

A bar chart is most likely used to display which of the following? a. A continuous variable b. A nominal level variable c. An ordinal level variable d. Either B or C | Either B or C

In a scatter plot the points should always be connected with a line. | False

A histogram is most commonly used to analyze which of the following? Time-series data Ordinal data Quantitative data Nominal level data | Quantitative Data

The use of charts and graphs is an example of: -inferential statistics. -descriptive statistics. -hypothesis testing. -estimation. | Descriptive statistics

Recording vehicle type as sedan, minivan, pick-up truck, etc. is an example of qualitative data. | True

An open-end question requires respondents to choose from a short list of choices | False

A short survey with closed-end questions is likely to have a better response rate than a long survey with open-ended questions. | True

Data collected on marital status (married, divorced, single, other) would be an ordinal level variable. | False

A variable, i.e., the length of time it takes for an employee to complete an assembly procedure at an automotive plant, is a ratio level variable. | True

When students are asked to list their age and the percentage of their college expenses that they pay for themselves, the type of data being collected is quantitative. | True

Descriptive statistics allow a decision maker to reach a conclusion about a population based on a subset from the population. | False

On a survey, amount of education is recorded as some high school, high school graduate, some college, college graduate, etc. This is an example of ordinal data. | True

Flavors of ice cream (chocolate, vanilla, strawberry, etc.) are an example of nominal data. | True

Nominal data is the highest level of data. | False

When the park ranger at Yellowstone National Park reports the average length of time that visitors spend in the park, he is using: numerical measures. graphical tools. statistical charts. histograms or bar charts. | numerical measures

At the end of the school term, students are asked to rate the course and instructor by indicating on a scale of 1-5 how well they liked the course. The data generated from this question are examples of ordinal data. | true

A variable that has all the properties of an interval variable, but also has a true zero, is a ratio level variable. | true

When a marketing manager surveys a few of the customers for the purpose of drawing a conclusion about the entire list of customers, she is applying: quantitative models. descriptive statistics. numerical measures. inferential statistics. | inferential statistics.

Which of the following is an example of graphs used to describe data? a. Histograms b. Bar charts c. Both A and B are correct. d. None of the above. | Both A and B are Correct

Sales data measured each week for the past twenty weeks are examples of time-series data. | True

A cell phone service provider has 14,000 customers. Recently, the sales department selected a random sample of 400 customer accounts and recorded the number of minutes of long distance time used during the previous billing period. The data for this variable is considered to be nominal since the values are based on sample data. | False

Simple random sampling involves selecting members of the population in such as way that all members are equally likely to be chosen. | True

Possibly the most frequently used nonstatistical sampling procedure is the simple random sample. | False

The difference between interval data and ratio data is that interval data has a natural zero. | False

Cross-sectional data is a set of data values observed at successive points in time. | False

The sales data for a company measured weekly for the past year would be considered cross-sectional data since the sales values are computed from the entire company. | False

A light bulb manufacturer wants to advertise the average life of its light bulbs so it tests a subset of light bulbs. This is an example of inferential statistics. | True

An accountant has recently prepared a report for a client that contains a variety of graphs and charts. In doing so, she has used descriptive statistical methods. | True

A car salesman has noted that the probability that the dealership sells a car on a Saturday morning  
is .30. Then the probability of the dealership not selling a car on Saturday morning is | .70.

1) The following probability distribution was subjectively assessed for the number of sales a salesperson would make if he or she made five sales calls in one day. Sales Probability 0 0.10 1 0.15 2 0.20 3 0.30 4 0.20 5 0.05 Given this distribution, the probability that the number of sales is more than 2 is 0.80. | False

2) When the salesperson makes a sale, there are three possible sales levels: large, medium, and small. The probability of a large sale is 0.20 and the chance of a medium sale is 0.60. Thus, when a sale is made, the chance of it being a small sale is 0.20. | True

3) Assume P(A) = 0.4 and P(B) = 0.2 and P(A and B) = 0.1, then the probability of P(A or B) = 0.7. | False

4) When the salesperson makes a sale, there are three possible sales levels: large, medium, and small. The probability of a large sale is 0.20 and the chance of a medium sale is 0.60. If a salesperson makes two sales, the probability that at least one is large is 0.36. | True

5) The following probability distribution was subjectively assessed for the number of sales a salesperson would make if he or she made five sales calls in one day. Sales Probability 0 0.10 1 0.15 2 0.20 3 0.30 4 0.20 5 0.05 When the salesperson makes a sale, there are three possible sales levels: large, medium, and small. The probability of a large sale is 0.20 and the chance of a medium sale is 0.60. The probability on a given day that the salesperson will make one sale and that it is medium is 0.09. | True

6) When customers come to a bank, there are three primary locations they may select to go to: teller, loan officer, or escrow department. Based on past experience, the following probability distribution applies:

Location Probability Teller 0.60 Loan Officer 0.30 Escrow 0.10 Seventy percent of customers are males. Thus, the probability that the next customer to enter the bank is a male who goes to the teller is 1.30. | False

7) When customers come to a bank, there are three primary locations they may select to go to: teller, loan officer, or escrow department. Based on past experience, the following probability distribution applies:

Location Probability Teller 0.60 Loan Officer 0.30 Escrow 0.10 Seventy percent of customers are males. The probability that the next two customers to enter the bank are males and go to the Loan Officer is 0.42. | False

8) When customers come to a bank, there are three primary locations they may select to go to: teller, loan officer, or escrow department. Based on past experience, the following probability distribution applies: Location Probability Teller 0.60 Loan Officer 0.30 Escrow 0.10 Seventy percent of customers are males. The probability that three consecutive customers all go to a teller is approximately 0.22. | True

9) When customers come to a bank, there are three primary locations they may select to go to: teller, loan officer, or escrow department. Based on past experience, the following probability distribution applies:

Location Probability Teller 0.60 Loan Officer 0.30 Escrow 0.10 Seventy percent of customers are males. The probability that the next customer will be male and will go to either the teller or the escrow department is 0.49. | True

10) There are three general locations that a taxi can go to: the airport, downtown, and elsewhere. When a taxi driver starts in the downtown location, there is a 0.40 chance that his first call will take him to the airport and a 0.40 chance of going to another downtown location. Once a taxi is at the airport, there is a 0.80 probability that the next fare will take him downtown and a 0.20 chance of going elsewhere. The probability of a call from anywhere except downtown taking him to the airport is 0.20. Therefore, the probability that the taxi is at the airport when the third call arrives after going on shift is 0.20. | True

11) Assume P(A) = 0.6, P(B) = 0.7, and P(A and B) = 0.42, which means that events A and B are independent of each other. | True

12) The Crystal Window Company makes windows at three locations: Reno, Las Vegas, and Boise. Some windows made by the company contain a visible defect and must be replaced. Each defect costs the company $45.00. The Reno plant makes 40 percent of all windows while the Las Vegas and Boise plants split the remaining production evenly. A recent quality study shows that 8 percent of the Reno windows contain a defect, 11 percent of the Las Vegas windows contain a defect, while 4 percent of the windows made in Boise have a defect. Once the windows are made, they are shipped to a central warehouse where they are commingled and the location where they were made is lost.

Based on this information, if a defective window is discovered, it was most likely made by the Las Vegas plant. | True

13) The Crystal Window Company makes windows at three locations: Reno, Las Vegas, and Boise. Some windows made by the company contain a visible defect and must be replaced. Each defect costs the company $45.00. The Reno plant makes 40 percent of all windows while the Las Vegas and Boise plants split the remaining production evenly. A recent quality study shows that 8 percent of the Reno windows contain a defect, 11 percent of the Las Vegas windows contain a defect, while 4 percent of the windows made in Boise have a defect. Once the windows are made, they are shipped to a central warehouse where they are commingled and the location where they were made is lost.

Based on this information the probability that a defective window was made by the Boise plant is approximately 0.16. | True

14) The Crystal Window Company makes windows at three locations: Reno, Las Vegas, and Boise. Some windows made by the company contain a visible defect and must be replaced. Each defect costs the company $45.00. The Reno plant makes 40 percent of all windows while the Las Vegas and Boise plants split the remaining production evenly. A recent quality study shows that 8 percent of the Reno windows contain a defect, 11 percent of the Las Vegas windows contain a defect, while 4 percent of the windows made in Boise have a defect. Once the windows are made, they are shipped to a central warehouse where they are commingled and the location where they were made is lost.

Based on this information, the percentage of the defective cost that should be allocated to the Reno plant is approximately 42 percent. | True

15) The Baker Oil and Gas Company has four retail locations, code-named A, B, C, and D. The following table illustrates the percentage of total company sales at each store and also the percentage of customers at that store who make purchases with debit cards: Store Proportion of Total Sales Proportion of Customers Using Debit A 0.18 0.32 B 0.30 0.19 C 0.41 0.18 D 0.11 0.40 Based on this information, the probability that a customer will use a debit card is just slightly greater than 0.23. | True

16) The Baker Oil and Gas Company has four retail locations, code-named A, B, C, and D. The following table illustrates the percentage of total company sales at each store and also the percentage of customers at that store who make purchases with debit cards: Store Proportion of Total Sales Proportion of Customers Using Debit A 0.18 0.32 B 0.30 0.19 C 0.41 0.18 D 0.11 0.40 Based on this information, given that a customer has used a debit card to make the purchase, the sale was most likely made at store D. | False

17) The Baker Oil and Gas Company has four retail locations, code-named A, B, C, and D. The following table illustrates the percentage of total company sales at each store and also the percentage of customers at that store who make purchases with debit cards: Store Proportion of Total Sales Proportion of Customers Using Debit A 0.18 0.32 B 0.30 0.19 C 0.41 0.18 D 0.11 0.40 Based on this information, the probability that a customer who used a debit card shopped at store C is 0.0738. | False

18) If a six-sided die is tossed two times and "4" shows up both times, the probability of "4" on the third trial is much larger than any other outcome. | False

19) An event is: | a collection of elementary events.

20) The method of probability assessment that relies on an examination of historical data from similar situations is: | relative frequency of occurrence.

21) The method of probability assessment that is least likely to be used by business decision makers is: | classical assessment.

22) At gambling casinos all over the country, a popular dice game is called craps. The probability of a player winning at this game can be assessed using: | classical probability.

23) A consumer products company is planning to introduce a new product. The method that is least likely to be used to assess the probability of the product being successful is: | classical probability assessment.

24) A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents. Product Preference Gender A B C Male 80 20 10 Female 200 70 120 If the people conducting the study wish to assess the probability that product A will be preferred by members of the target population, the method of assessment to be used would most likely be: | relative frequency of occurrence.

25) A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents. Product Preference Gender A B C Male 80 20 10 Female 200 70 120 Based on these data, the probability that a person in the population will prefer product A can be assessed as: | 0.56.

26) A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents. Product Preference Gender A B C Male 80 20 10 Female 200 70 120 Suppose one person is randomly chosen. Based on this data, what is the probability that the person chosen is a female who prefers product C? | 0.24

27) When a customer enters a store there are three outcomes that can occur: buy nothing, buy a small amount, or buy a large amount. In this situation, if a customer buys a large amount, he or she cannot also buy a small amount or buy nothing. Thus the events are: | mutually exclusive.

28) When a pair of dice are rolled, the outcome for each die can be said to be: | mutually exclusive.

29) If two events are independent, then | None of the above.

30) The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is shown below: Type of Golf Ball Handicap Strata Titleist Nike Other <2 5 8 3 2 2 to <10 8 7 9 10 ≥ 10 7 8 10 23 Based on these data, the probability of a golfer having a handicap less than 10 is: | 0.52.

31) The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is shown below: Type of Golf Ball Handicap Strata Titleist Nike Other < 2 5 8 3 2 2 to < 10 8 7 9 10 ≥ 10 7 8 10 23Based on these data, the probability that a player will use a Strata golf ball is: | 0.20.

32) The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is shown below: Type of Golf Ball Handicap Strata Titleist Nike Other < 2 5 8 3 2 2 to < 10 8 7 9 10 ≥ 10 7 8 10 23 If a player comes to the course using a Nike golf ball, the probability that he or she has a handicap of at least 10 is: | slightly greater than 0.45.

33) The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is shown below: Type of Golf Ball Handicap Strata Titleist Nike Other < 2 5 8 3 2 2 to < 10 8 7 9 10 ≥ 10 7 8 10 23 Based on these data, the probability of someone using a Strata ball and having a handicap under 2 is: | 0.05.

34) The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is shown below: Type of Golf Ball Handicap Strata Titleist Nike Other < 2 5 8 3 2 2 to < 10 8 7 9 10 ≥ 10 7 8 10 23 Based on these data, if a player has a handicap that is 10 or more, the probability that he or she will use a Nike golf ball is: | 0.21.

35) The Anderson Lumber Company has three sawmills that produce boards of different lengths. The following table is a joint frequency distribution based on a random sample of 1,000 boards selected from the lumber inventory. Board Length Sawmill 8 ft 10 ft 12 ft 14 ft A 140 100 80 14 B 250 20 100 50 C 160 50 16 20 Based on these data, the probability of selecting a board from inventory that is 10 feet long is: | 0.170.

36) The Anderson Lumber Company has three sawmills that produce boards of different lengths. The following table is a joint frequency distribution based on a random sample of 1,000 boards selected from the lumber inventory. Board Length Sawmill 8 ft 10 ft 12 ft 14 ft A 140 100 80 14 B 250 20 100 50 C 160 50 16 20 Based on these data, if a board is selected that is 12 feet long, the probability that it was made at sawmill A is: | 0.41.

37) The Anderson Lumber Company has three sawmills that produce boards of different lengths. The following table is a joint frequency distribution based on a random sample of 1000 boards selected from the lumber inventory. Board Length Sawmill 8 ft 10 ft 12 ft 14 ft A 140 100 80 14 B 250 20 100 50 C 160 50 16 20 Based on these data, if three boards are selected at random, the probability that all three were made at sawmill A is: | 0.037

38) Harrison Water Sports has three retail outlets: Seattle, Portland, and Phoenix. The Seattle store does 50 percent of the total sales in a year, while the Portland store does 35 percent of the total sales. Further analysis indicates that of the sales in Seattle, 20 percent are in boat accessories. The percentage of boat accessories at the Portland store is 30 and the percentage at the Phoenix store is 25. If a sales dollar is recorded as a boat accessory, the probability that the sale was made at the Portland store is: | slightly greater than 0.43.

39) Harrison Water Sports has three retail outlets: Seattle, Portland, and Phoenix. The Seattle store does 50 percent of the total sales in a year, while the Portland store does 35 percent of the total sales. Further analysis indicates that of the sales in Seattle, 20 percent are in boat accessories. The percentage of boat accessories at the Portland store is 30 and the percentage at the Phoenix store is 25. Overall, the probability that a sale by Harrison Water Sports will be for a boat accessory is: | 0.2425.

40) Of the last 100 customers entering a computer shop, 25 have purchased a computer. If the classical probability assessment for computing probability is used, the probability that the next customer will purchase a computer is | 0.50.

A manufacturing company makes three types of products. Each time it makes a product, the item can be  
either good or defective and it can be either customized or standard. The events consisting of  
customized and defective would be considered mutually exclusive since they apply to different attributes  
of the product. | False

A New Jersey company relies on a steady supply of power to keep its manufacturing going. Recently at  
a planning meeting, the general manager stated that the chance of a rolling blackout affecting  
production is 0.15. The controller stated that the chance of a rolling blackout is 0.30. The reason that  
the two probabilities are different is that these assessments were based on classical probability  
techniques. | False

A used car lot has 15 cars. Five of these cars were manufactured in the U.S. and the remainders were  
made in other countries. If three cars are purchased, the probability that all three will be U. S. made cars  
is approximately .022. | True

The following probability distribution was subjectively assessed for the number of sales a salesperson would make if they made five sales calls in one day. Sales Probability 0 0.10 1 0.15 2 0.20 3 0.30 4 0.20 5 0.05 When the salesperson makes a sale, there are three possible sales levels: large, medium, and small. The probability of a large sale is 0.20 and the chance of a medium sale is 0.60. If a salesperson makes two sales, the probability that at least one is large is 0.36. | **True**

A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents. Product Preference

|  |  |  |  |
| --- | --- | --- | --- |
| Gender | A | B | C |
| Male | 80 | 20 | 10 |
| Female | 200 | 70 | 120 |

Based on these data, find the probability that a person in the population will prefer product A. | 0.56

The managers of a local golf course have recently conducted a study of the types of golf balls used by golfers based on handicap. A joint frequency table for the 100 golfers covered in the survey is show below: Type of Golf Ball Handicap Strata Titleist Nike Other < 2 5 8 3 2 2 < 10 8 7 9 10 > 10 7 8 10 23 If a player comes to the course using a Nike golf ball, find the probability that he or she has a handicap of at least 10. | 0.454545

The following probability distribution has been assessed for the number of accidents that occur in a  
midwestern city each day: Accidents (xi) Probability P(xi) (xi)P(xi) (xi)2 (xi)2P(xi) 0 0.25 0 0 0 1 0.20 0.20 1 0.20 2 0.30 0.60 4 1.20 3 0.15 0.45 9 1.35 4 0.10 0.40 1.65 16 1.60 4.35 SUM Based on this probability distribution, find the standard deviation in the number of accidents per day. | 1.2757

A study was recently done in which 500 people were asked to indicate their preferences for one of three products. The following table shows the breakdown of the responses by gender of the respondents. Product Preference Gender A B C Male 80 20 10 Female 200 70 120 Based on these data, find the probability that a person in the population will prefer product C. | 0.26

The Baker Oil and Gas Company has four retail locations code named A, B, C, and D. The following

table illustrates the percentage of total company sales at each store and also the percentage of customers at that store who make purchases with debit cards: Store Proportion of Total Sales Proportion of Customers Using Debit A 0.18 0.32 B 0.30 0.19 C 0.41 0.18 D 0.11 0.40 Based on this information, find the probability that a customer who used a debit card shopped at store C. | 0.317556

The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution for  
the number of skiers that are injured each weekend: Injured Skiers(xi) ProbabilityP(xi) xiPxi xi2 xi2P(xi) 0 0.15 0 0 0 1 0.05 0.05 1 0.05 2 0.40 0.80 4 1.60 3 0.10 0.30 9 0.90 4 0.30 1.20 16 4.80 SUM 2.35 7.35 Based on this information, find the standard deviation for the number of injuries per weekend . | 1.351851

The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution  
for the number of skiers that are injured each weekend: Injured Skiers Probability 0 0.05 1 0.15 2 0.40 3 0.30 4 0.10  
Based on this information, what is the expected number of injuries per weekend? (+ all) | 2.25

Based on the information from exercise 1, find F(3) = 0.9 | None

The following probability distribution has been assessed forthe number of accidents that occur in a mid western city eachday:Accidents01234Probability0.250.20.30.150.1E = 1.65Based on this probability distribution, the standarddeviation in the number of accidents per day is: 1.2757 | None

Based on the data from exercise 3, find the probability thatthere are at least two accidents per day.0.3+0.15+0.1 | 0.55

An office has three telephone lines. At any given time, theprobability that at least one line is in use is 0.8. P(1)+P(2)+P(3) = 0.8, P(0) = 0.2 a) Find the probability that, at any given time, all three are inuse. Answer: | 0.07157.

b) Find the probability that, at any given time, there are exactly 2 lines is in use. | 0.3024

# [The number of customers who arrive at a fast food business during a one-hour period is known to be Poisson distributed with a mean equal to 8.60. The probability that between 2 and 3 customers inclusively will arrive in one hour | 0.0263](https://sciemce.com/t/the-number-of-customers-who-arrive-at-a-fast-food-business-during-a-one-hour-period-is-known-to-be-poisson-distributed-with-a-mean-equal-to-8-60-the-probability-that-between-2-and-3-customers-inclusively-will-arrive-in-one-hour-is-0-0263/853337)

The time required to assemble two components into a finished part is recorded for each employee at the plant. The resulting random variable is an example of a continuous random variable. | True

When a market research manager records the number of potential customers who were surveyed indicating that they like the product design, the random variable, number who like the design, is a discrete random variable. | True

The following probability distribution has been assessed for the number of accidents that occur in a Midwestern city each day: Accidents Probability 0 = 0.25 1 = 0.20 2 = 0.30 3 = 0.15 4 = 0.10 This distribution is an example of: | a discrete probability distribution.

Which of the following is not a condition of the binomial distribution? | The standard deviation is equal to the square root of the mean.

If a study is set up in such a way that a sample of people is surveyed to determine whether they have ever used a particular product, the likely probability distribution that would describe the random variable, the number who say yes, is a: | binomial distribution.

Assuming that potholes occur randomly along roads, the number of potholes per mile of road could best be described by the: | Poisson distribution.

The hypergeometric probability distribution is used rather than the binomial or the Poisson when: | the sampling is performed without replacement from a finite population.

*The transportation manager for the State of New Jersey has determined that the time between arrivals at a toll booth on the state’s turnpike is exponentially distributed with λ = 4 cars per minute. Based on this information, what is the probability that the time between any two cars arriving will exceed 11 seconds?*| Approximately 0.48

The Central Limit Theorem is of the most use to decision makers when the population is known to be normally distributed. | b. False

One of the things that the Central Limit Theorem tells us is that about half of the sample means will be greater than the population mean and about half will be less. |

True

Which of the following statements is not consistent with the Central Limit Theorem? | a. The Central Limit Theorem applies without regard to sample size.

Suppose that 60% of the faculty voted in favor of a mandatory course in quantitative literacy as a graduation requirement. The local newspaper will be contacting 100 faculty members selected at random. What is the approximate probability that fewer than half of them will have voted in favor of the issue? | b. 0.0206

A 95% confidence interval for the mean number of televisions per American household is (1.15, 4.20). This means that 95% of all American households have between 1.15 and 4.20 televisions.  | b. False

A survey of 200 students provides a sample mean of 7.10 hours worked with a standard deviation of 5 hours. What is a 95% confidence interval for the mean based on this sample? | b. (6.41, 7.79)

Consider a random sample of 35 teenagers who averaged 7.3 hours of sleep per night with a standard deviation of 1.8 hours. Calculate a 95% confidence interval for the mean. | a. (6.7, 7.9)

A randomly selected sample of 1,000 college students was asked whether they had ever used the drug Ecstasy. Sixteen percent (16% or 0.16) of the 1,000 students surveyed said they had. Which one of the following statements about the number 0.16 is correct? | a. It is a sample proportion

Suppose a 95% confidence interval for the proportion of Americans who exercise regularly is 0.29 to 0.37. Which one of the following statements is FALSE? | b. It is reasonable to say that more than 40% of Americans exercise regularly.

In hypothesis testing, a Type 2 error occurs when | c. The null hypothesis is not rejected when the alternative hypothesis is true.

If you increase the confidence level, the confidence interval | a. Increases

You are told that a random sample of 150 people from Iowa has been given cholesterol tests, and 60 of these people had levels over the "safe" count of 200. Construct a 95% confidence interval for the population proportion of people in Iowa with cholesterol levels over 200. What is the upper value of the confidence interval? | Any value from 0.47 to 0.48 accepted.

You have been assigned to determine whether more people prefer Coke to Pepsi. Assume that roughly half the population prefers Coke and half prefers Pepsi. How large a sample would you need to take to ensure that you could estimate, with 95% confidence, the proportion of people preferring Coke within 3% of the actual value? |

Any value from 1066 to 1070 accepted.

14) A random sample of 100 visitors to a popular theme park spent an average of $142 on the trip with a standard deviation of $47.5. Construct a 95% confidence interval for the mean money spent by all visitors to this theme park. What is the lower value of this interval? | Any value from 132 to 133 accepted.

15) Recently, a report in a financial journal indicated that the 90 percent confidence interval estimate for the proportion of investors who own one or more mutual funds is between 0.88 and 0.92. Given this information, the sample size that was used in this study was approximately 609 investors. | a. True

16) Which of the following is an appropriate null hypothesis? | a. The mean of a population is equal to 60.

# The Olsen Agricultural Company has determined that the weight of hay bales is normally distributed with a mean equal to 80 pounds and a standard deviation equal to 8 pounds. Based on this what is the mean of the sampling distrubution for (x with line above) if the sample size is n=64 | 80

# In an application to estimate the mean number of miles that downtown employees commute to work roundtrip each day, the following information is given: n = 20 x = 4.33 s = 3.50 The point estimate for the true population mean is: | 4.33

# A major tire manufacturer wishes to estimate the mean tread life in miles for one of their tires. They wish to develop a confidence interval estimate that would have a maximum sampling error of 500 miles with 90 percent confidence. A pilot sample of n = 50 tires showed a sample standard deviation equal to 4,000 miles. Based on this information and let z0.05 = 1.645, the required sample size is: | 174

**When a new drug is created, the pharmaceutical company must subject it to testing before receiving the necessary permission from the Food and Drug Administration (FDA) to market the drug. Suppose the null hypothesis is “the drug is unsafe.” What is the Type II Error? | To claim the drug is unsafe when, in fact, it is safe.**

**The next two questions refer to the following information: Over the past few decades, public health officials have examined the link between weight concerns and teen girls smoking. Researchers surveyed a group of 273 randomly selected teen girls living in Massachusetts (between 12 and 15 years old). After four years the girls were surveyed again. Sixty-three (63) said they smoked to stay thin. 2. Is there good evidence that more than thirty percent of the teen girls smoke to stay thin? The alternate hypothesis is: | p > 0.30**

**After conducting the test, your decision and conclusion are | Do not reject Ho: At most 30% of teen girls smoke to stay thin.**

The cost of a college education has increased at a much faster rate than costs in general over the past twenty years. In order to compensate for this, many students work part- or full-time in addition to attending classes. At one university, it is believed that the average hours students work per week exceeds 20. To test this at a significance level of 0.05, a random sample of n = 20 students was selected and the following values were observed: 26 15 10 40 10 20 30 36 40 0 5 10 20 32 16 12 40 36 10 0 Based on these sample data, the critical value expressed in hours is? | is approximately equal to 25.26 hours.

The manager of a computer help desk operation has collected enough data to conclude that the distribution of time per call is normally distributed with a mean equal to 8.21 minutes and a standard deviation of 2.14 minutes. Based on this, what is the probability that a call will last longer than 13 minutes? | About 0.0125

The manager at a local movie theater has collected data for a long period of time and has concluded that the revenue from concession sales during the first show each evening is normally distributed with a mean equal to $336.25 and a variance equal to 1,456. Based on this information, what are the chances that the revenue on the first show will exceed $800? | Essentially zero

A randomly selected value from a normal distribution is found to be 2.1 standard deviations above its mean. What is the probability that a randomly selected value from the distribution will be greater than 2.1 standard deviations above the mean? | 0.0179

A random variable is normally distributed with a mean of 25 and a standard deviation of

The manager of a computer help desk operation has collected enough data to conclude that the distribution of time per call is normally distributed with a mean equal to 8.21 minutes and a standard deviation of 2.14 minutes. What is the probability that three randomly monitored calls will each be completed in 4 minutes or less? | About 0.00001

In a standard normal distribution, the probability that z is greater than 0 is: | 0.5

A randomly selected value from a normal distribution is found to be 2.1 standard deviations above its mean. What is the probability that a randomly selected value from the distribution will be less than 2.1 standard deviations from the mean? | 0.9821

A professor noted that the grades of his students were normally distributed with a mean of 75.07 and a standard deviation of 11.65. If only 10 percent of the students received grades of A, what is the minimum score needed to receive an A? | 90.00

The makers of Sweet-Things candy sell their candy by the box. Based on company policy, the mean target weight of all boxes is 2.0 pounds. To make sure that they are not putting too much in the boxes, the manager wants no more than 3 percent of all boxes to contain more than 2.10 pounds of candy. In order to do this, with a mean weight of 2 pounds, what must the standard deviation be? Assume that the box weights are normally distributed. | Approximately 0.05 pounds

The makers of Sweet-Things candy sell their candy by the box. Based on company policy, the mean target weight of all boxes is 2.0 pounds. To make sure that they are not putting too much in the boxes, the manager wants no more than 3 percent of all boxes to contain more than 2.10 pounds of candy. In order to do this, what should the mean fill weight be set to if the fill standard deviation is 0.13 pounds? Assume that the box weights are normally distributed. | Approximately 1.86 pounds

A recent study showed that the length of time that juries deliberate on a verdict for civil trials is normally distributed with a mean equal to 12.56 hours with a standard deviation of 6.7 hours. Given this information, what is the probability that a deliberation will last between 10 and 15 hours? | Approximately 0.29

A major cell phone service provider has determined that the number of minutes that its customers use their phone per month is normally distributed with a mean equal to 445.5 minutes with a standard deviation equal to 177.8 minutes. The company is thinking of charging a lower rate for customers who use the phone less than a specified amount. If it wishes to give the rate reduction to no more than 12 percent of its customers, what should the cut-off be? | About 237 minutes

A major U.S. automaker has determined that the city mileage for one of its new SUV models is normally distributed with a mean equal to 15.2 mpg. A report issued by the company indicated that 22 percent of the SUV model vehicles will get more than 17 mpg in the city. Given this information, what is the city mileage standard deviation for this SUV model? | Approximately 2.34 mpg

A random variable is normally distributed with a mean of 25 and a standard deviation of 5. If an observation is randomly selected from the distribution, what value will be exceeded 85% of the time? | 19.8

For a standardized normal distribution, determine a value, say z0, so that P(-z0 ≤ z ≤ z0) = 0.95. | 1.96

For a standardized normal distribution, calculate P(-1.00 < z 1 <.00). | 0.6826

Suppose the life of a particular brand of calculator battery is approximately normally distributed with a mean of 75 hours and a standard deviation of 10 hours. If the manufacturer of the battery is able to reduce the standard deviation of battery life from 10 to 9 hours, what would be the probability that 16 batteries randomly sampled from the population will have a sample mean life of between 70 and 80 hours? | 0.9736

The proportion of items in a population that possess a specific attribute is known to be 0.70. If a simple random sample of size n = 100 is selected and the proportion of items in the sample that contain the attribute of interest is 0.65, what is the sampling error? | -0.05

A normally distributed population has a mean of 500 and a standard deviation of 60. Determine the probability that a random sample of size 25 selected from the population will have a sample mean greater than or equal to 515. | 0.1056

Given a population in which the probability of success is p = 0.20, if a sample of 500 items is taken, then calculate the probability the proportion of successes in the sample will be between 0.18 and 0.23 if the sample size is 200. | 0.6165

Suppose that a population is known to be normally distributed with mean = 2,000 and standard deviation = 230. If a random sample of size n = 8 is selected, calculate the probability that the sample mean will exceed 2,100. | 0.1093

According to the most recent Labor Department data, 10.5% of engineers (electrical, mechanical, civil, and industrial) were women. Suppose a random sample of 50 engineers is selected. How likely is it that the random sample will contain fewer than 5 women in these positions? | 0.4522

Suppose the life of a particular brand of calculator battery is approximately normally distributed with a mean of 75 hours and a standard deviation of 10 hours. What is the probability that a single battery randomly selected from the population will have a life between 70 and 80 hours? | 0.3830

The branch manager for United Savings and Loan in Seaside, Virginia, has worked with her employees in an effort to reduce the waiting time for customers at the bank. Recently, she and the team concluded that average waiting time is now down to 3.5 minutes with a standard deviation equal to 1.0 minute. However, before making a statement at a managers' meeting, this branch manager wanted to double-check that the process was working as thought. To make this check, she randomly sampled 25 customers and recorded the time they had to wait. She discovered that mean wait time for this sample of customers was 4.2 minutes. Based on the team's claims about waiting time, what is the probability that a sample mean for n = 25 people would be as large or larger than 4.2 minutes? | 0.0000

A major shipping company has stated that 96 percent of all parcels are delivered on time. To check this, a random sample of n = 200 parcels were sampled. Of these, 184 arrived on time. If the company's claim is correct, what is the probability of 184 or fewer parcels arriving on time? | About 0.0019

In a recent report, it was stated that the proportion of employees who carpool to their work is 0.14 and that the standard deviation of the sampling proportion is 0.0259. However, the report did not indicate what the sample size was. What was the sample size? | 180

The file Danish Coffee contains a random sample of 144 Danish coffee drinkers and measures the annual coffee consumption in kilograms for each sampled coffee drinker. A marketing research firm wants to use this information to develop an advertising campaign to increase Danish coffee consumption. Develop and interpret a 90% confidence interval estimate for the mean annual coffee consumption of Danish coffee drinkers. | (6.3881, 6.6855)

The file Danish Coffee contains a random sample of 144 Danish coffee drinkers and measures the annual coffee consumption in kilograms for each sampled coffee drinker. A marketing research firm wants to use this information to develop an advertising campaign to increase Danish coffee consumption.  
Based on the sample's results, what is the best point estimate of average annual coffee consumption for Danish coffee drinkers? | 6.5368

The produce manager for a large retail food chain is interested in estimating the percentage of potatoes that arrive on a shipment with bruises. A random sample of 150 potatoes showed 14 with bruises. Based on this information, what is the margin of error for a 95 percent confidence interval estimate?|0.0466

At issue is the proportion of people in a particular county who do not have health care insurance coverage. A simple random sample of 240 people was asked if they have insurance coverage, and 66 replied that they did not have coverage. Based on these sample data, determine the 95% confidence interval estimate for the population proportion.|(0.224, 0.336)

Most major airlines allow passengers to carry two pieces of luggage (of a certain maximum size) onto the plane. However, their studies show that the more carry-on baggage passengers have, the longer it takes to unload and load passengers. One regional airline is considering changing its policy to allow only one carry-on per passenger. Before doing so, it decided to collect some data. Specifically, a random sample of 1,000 passengers was selected. The passengers were observed, and the number of bags carried on the plane was noted. Out of the 1,000 passengers, 345 had more than one bag.Based on this sample, develop and interpret a 95% confidence interval estimate for the proportion of the traveling population that would have been impacted had the one-bag limit been in effect. | (0.3155, 0.3745)

A decision maker is interested in estimating a population proportion. A sample of size n = 150 yields 115 successes. Based on these sample data, construct a 90% confidence interval estimate for the true population proportion. | (0.714, 0.826)

As the automobile accident rate increases, insurers are forced to increase their premium rates. Companies such as Allstate have recently been running a campaign they hope will result in fewer accidents by their policyholders. For each six-month period that a customer goes without an accident, Allstate will reduce the customer's premium rate by a certain percentage. Companies like Allstate have reason to be concerned about driving habits, based on a survey conducted by Drive for Life, a safety group sponsored by Volvo of North America, in which 1,100 drivers were surveyed. Among those surveyed, 74% said that careless or aggressive driving was the biggest threat on the road. One-third of the respondents said that cell phone usage by other drivers was the driving behavior that annoyed them the most.Based on these data, assuming that the sample was a simple random sample, construct and interpret a 95% confidence interval estimate for the true proportion in the population of all drivers who are annoyed by cell phone users. | (0.302, 0.358)

A study has indicated that the sample size necessary to estimate the average electricity use by residential customers of a large western utility company is 900 customers. Assuming that the margin of error associated with the estimate will be ±30 watts and the confidence level is stated to be 90 percent, what was the value for the population standard deviation? | Approximately 547.1 watts

The U.S. Post Office is interested in estimating the mean weight of packages shipped using the overnight service. They plan to sample 300 packages. A pilot sample taken last year showed that the standard deviation in weight was about 0.15 pound. If they are interested in an estimate that has 95 percent confidence, what margin of error can they expect? | Approximately 0.017 pound

Most major airlines allow passengers to carry two pieces of luggage (of a certain maximum size) onto the plane. However, their studies show that the more carry-on baggage passengers have, the longer it takes to unload and load passengers. One regional airline is considering changing its policy to allow only one carry-on per passenger. Before doing so, it decided to collect some data. Specifically, a random sample of 1,000 passengers was selected. The passengers were observed, and the number of bags carried on the plane was noted. Out of the 1,000 passengers, 345 had more than one bag.The domestic version of Boeing's 747 has a capacity for 568 passengers. Determine an interval estimate of the number of passengers that you would expect to carry more than one piece of luggage on the plane. Assume the plane is at its passenger capacity. | (179.20, 212.716)

Suppose a study of 196 randomly sampled privately insured adults with incomes over 200% of the current poverty level is to be used to measure out-of-pocket medical expenses for prescription drugs for this income class. The sample data are in the file Drug Expenses.Based on the sample data, construct a 95% confidence interval estimate for the mean annual out-of-pocket expenditures on prescription drugs for this income class. Interpret this interval. | (163.50, 171.54)

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95 percent confidence, the proportion of the bank's customers who also have accounts at one or more other banks is between .45 and .51. Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

A production process that fills 12-ounce cereal boxes is known to have a population standard deviation of 0.009 ounce. If a consumer protection agency would like to estimate the mean fill, in ounces, for 12-ounce cereal boxes with a confidence level of 92% and a margin of error of 0.001, what size sample must be used? | 249

Suppose an airline decides to conduct a survey of its customers to determine their opinion of a proposed one-bag limit. The plan calls for a random sample of customers on different flights to be given a short written survey to complete during the flight. One key question on the survey will be: "Do you approve of limiting the number of carry-on bags to a maximum of one bag?" Airline managers expect that only about 15% will say "yes." Based on this assumption, what size sample should the airline take if it wants to develop a 95% confidence interval estimate for the population proportion who will say "yes" with a margin of error of ±0.02? | 1225

According to USA Today, customers are not settling for automobiles straight off the production lines. As an example, those who purchase a $355,000 Rolls-Royce typically add $25,000 in accessories. One of the affordable automobiles to receive additions is BMW's Mini Cooper. A sample of 179 recent Mini purchasers yielded a sample mean of $5,000 above the $20,200 base sticker price. Suppose the cost of accessories purchased for all Mini Coopers has a standard deviation of $1,500.Determine the margin of error in estimating the average cost of accessories on Mini Coopers. | 219.75

Construct a 98% confidence interval estimate for the population mean given the following values: | (113.41, 126.59)

A sample of 250 people resulted in a confidence interval estimate for the proportion of people who believe that the federal government's proposed tax increase is justified is between 0.14 and 0.20. Based on this information, what was the confidence level used in this estimation? | Approximately 79 percent

According to USA Today, customers are not settling for automobiles straight off the production lines. As an example, those who purchase a $355,000 Rolls-Royce typically add $25,000 in accessories. One of the affordable automobiles to receive additions is BMW's Mini Cooper. A sample of 179 recent Mini purchasers yielded a sample mean of $5,000 above the $20,200 base sticker price. Suppose the cost of accessories purchased for all Mini Coopers has a standard deviation of $1,500.  
Calculate a 95% confidence interval for the average cost of accessories on Mini Coopers.| (4780.25, 5219.75)

A hospital emergency room has collected a sample of n = 40 to estimate the mean number of visits per day. It has found the standard deviation is 32. Using a 90 percent confidence level, what is its margin of error? | Approximately ±8.3 visits

A survey of 499 women for the American Orthopedic Foot and Ankle Society revealed that 38% wear flats to work. Use this sample information to develop a 99% confidence interval for the population proportion of women who wear flats to work. | (0.324, 0.436)

Even before the record gas prices during the summer of 2008, an article written by Will Lester of the Associated Press reported on a poll in which 80% of those surveyed say that Americans who currently own a SUV (sport utility vehicle) should switch to a more fuel-efficient vehicle to ease America's dependency on foreign oil. This study was conducted by the Pew Research Center for the People & the Press. As a follow-up to this report, a consumer group conducted a study of SUV owners to estimate the mean mileage for their vehicles. A simple random sample of 91 SUV owners was selected, and the owners were asked to report their highway mileage. The following results were summarized from the sample data: x = 18.2 mpg s = 6.3 mpg Based on these sample data, compute and interpret a 90% confidence interval estimate for the mean highway mileage for SUVs. | (17.1, 19.3)

Most major airlines allow passengers to carry two pieces of luggage (of a certain maximum size) onto the plane. However, their studies show that the more carry-on baggage passengers have, the longer it takes to unload and load passengers. One regional airline is considering changing its policy to allow only one carry-on per passenger. Before doing so, it decided to collect some data. Specifically, a random sample of 1,000 passengers was selected. The passengers were observed, and the number of bags carried on the plane was noted. Out of the 1,000 passengers, 345 had more than one bag.Suppose the airline also noted whether the passenger was male or female. Out of the 1,000 passengers observed, 690 were males. Of this group, 280 had more than one bag. Using this data, obtain and interpret a 95% confidence interval estimate for the proportion of male passengers in the population who would have been affected by the one-bag limit. | (0.3692, 0.4424)

A pilot sample of 75 items was taken, and the number of items with the attribute of interest was found to be 15. How many more items must be sampled to construct a 99% confidence interval estimate for p with a 0.025 margin of error? | 1623

Allante Pizza delivers pizzas throughout its local market area at no charge to the customer. However, customers often tip the driver. The owner is interested in estimating the mean tip income per delivery. To do this, she has selected a simple random sample of 12 deliveries and has recorded the tips that were received by the drivers. These data are:$2.25 $2.50 $2.25 $2.00 $2.00 $1.50 $0.00 $2.00 $1.50 $2.00 $3.00 $1.50 Suppose the owner is interested in developing a 90% confidence interval estimate. Given the fact that the population standard deviation is unknown, what distribution will be used to obtain the critical value? | t-distribution

Suppose a study estimated the population mean for a variable of interest using a 99% confidence interval. If the width of the estimated confidence interval (the difference between the upper limit and the lower limit) is 600 and the sample size used in estimating the mean is 1,000, what is the population standard deviation? | 3684.21

If the p value is less than α in a two-tailed test, | the null hypothesis should be rejected.

Woof Chow Dog Food Company believes that it has a market share of 25 percent. It surveys n = 100 dog owners and ask whether or not Woof Chow is their regular brand of dog food, and 23 people say yes. Based upon this information, what is the critical value if the hypothesis is to be tested at the 0.05 level of significance? | 1.96

The Adams Shoe Company believes that the mean size for men's shoes is now more than 10 inches. To test this, it has selected a random sample of n = 100 men. Assuming that the test is to be conducted using a .05 level of significance, a p-value of .07 would lead the company to conclude that its belief is correct. | False

To calculate beta requires making a "what if" assumption about the true population parameter, where the "what-if" value is one that would cause the null hypothesis to be false. | True

The manager of an online shop wants to determine whether the mean length of calling time of its customers is significantly more than 3 minutes. A random sample of 100 customers was taken. The average length of calling time in the sample was 3.1 minutes with a standard deviation of 0.5 minutes. At a 0.05 level of significance, it can be concluded that the mean of the population is: | significantly greater than 3.

The null and alternate hypotheses must be opposites of each other. | True

In hypothesis testing, the null hypothesis should contain the equality sign. | True

Choosing an alpha of 0.01 will cause beta to equal 0.99. | False

Which of the following statements is true? | The decision maker controls the probability of making a Type I statistical error.

The following is an appropriate statement of the null and alternate hypotheses for a test of a population mean: H0: μ < 50 HA : μ > 50 | False

The makers of Mini-Oats Cereal have an automated packaging machine that can be set at any targeted fill level between 12 and 32 ounces. Every box of cereal is not expected to contain exactly the targeted weight, but the average of all boxes filled should. At the end of every shift (eight hours), 16 boxes are selected at random and the mean and standard deviation of the sample are computed. Based on these sample results, the production control manager determines whether the filling machine needs to be readjusted or whether it remains all right to operate. Use α = 0.05. Establish the appropriate null and alternative hypotheses to be tested for boxes that are supposed to have an average of 24 ounces. | H0 : μ = 24 ounces Ha : μ ≠ 24 ounces

According to CNN business partner Careerbuilder.com, the average starting salary for accounting graduates in 2008 was at least $47,413. Suppose that the American Society for Certified Public Accountants planned to test this claim by randomly sampling 200 accountants who graduated in 2008. State the appropriate null and alternative hypotheses. | H0 : μ ≥ $47,413 HA : μ < $47,413

A hypothesis test is to be conducted using an alpha = .05 level. This means: | there is a maximum 5 percent chance that a true null hypothesis will be rejected.

For the following z-test statistic, compute the p-value assuming that the hypothesis test is a one-tailed test: z = 2.09. | 0.0183

A company that makes shampoo wants to test whether the average amount of shampoo per bottle is 16 ounces. The standard deviation is known to be 0.20 ounces. Assuming that the hypothesis test is to be performed using 0.10 level of significance and a random sample of n = 64 bottles, how large could the sample mean be before they would reject the null hypothesis? | 16.041 ounces

In conducting a hypothesis test where the conclusion is to reject the null hypothesis, then either a correct decision has been made or else a Type I error. | True

Hypothesis testing and confidence interval estimation are essentially two totally different statistical procedures and share little in common with each other. | False

The U.S. Bureau of Labor Statistics (www.bls.gov) released its Consumer Expenditures report in October 2008. Among its findings is that average annual household spending on food at home was $3,624. Suppose a random sample of 137 households in Detroit was taken to determine whether the average annual expenditure on food at home was less for consumer units in Detroit than in the nation as a whole. The sample results are in the file Detroit Eats. Based on the sample results, can it be concluded at the α = 0.02 level of significance that average consumer-unit spending for food at home in Detroit is less than the national average? | Because t = -15.7648 is less than the critical t value of -2.0736, reject H0. The annual average consumer unit spending for food at home in Detroit is less than the 2006 national consumer unit average.

The power of a test is measured by its capability of: | rejecting a null hypothesis that is false.

Waiters at Finegold's Restaurant and Lounge earn most of their income from tips. Each waiter is required to "tip-out" a portion of tips to the table bussers and hostesses. The manager has based the "tip-out" rate on the assumption that the mean tip is at least 15% of the customer bill. To make sure that this is the correct assumption, he has decided to conduct a test by randomly sampling 60 bills and recording the actual tips.  
Calculate the probability of a Type II error if the true mean is 14%. Assume that the population standard deviation is known to be 2% and that a significance level equal to 0.01 will be used to conduct the hypothesis test. | 0.0606

According to data from the Environmental Protection Agency, the average daily water consumption for a household of four people in the United States is approximately at least 243 gallons.(Source:http://www.catskillcenter.org/programs/csp/H20/Lesson3/house3.htm) Suppose a state agency plans to test this claim using an alpha level equal to 0.05 and a random sample of 100 households with four people.Calculate the probability of committing a Type II error if the true population mean is 230 gallons. Assume that the population standard deviation is known to be 40 gallons. | 0.0537

If a hypothesis test is conducted for a population mean, a null and alternative hypothesis of the form: H0 : μ = 100 HA : μ ≠ 100 will result in a one-tailed hypothesis test since the sample result can fall in only one tail. | False

When someone is on trial for suspicion of committing a crime, the hypotheses are:H0 : innocent HA : guilty Which of the following is correct? | Type I error is convicting an innocent person.

For the following z-test statistic, compute the p-value assuming that the hypothesis test is a one-tailed test: z = 1.34.| 0.0901

A major issue facing many states is whether to legalize casino gambling. Suppose the governor of one state believes that more than 55% of the state's registered voters would favor some form of legal casino gambling. However, before backing a proposal to allow such gambling, the governor has instructed his aides to conduct a statistical test on the issue. To do this, the aides have hired a consulting firm to survey a simple random sample of 300 voters in the state. Of these 300 voters, 175 actually favored legalized gambling.Assuming that a significance level of 0.05 is used, what conclusion should the governor reach based on these sample data? | Since z = 1.1594 < 1.645, do not reject the null hypothesis.  
The sample data do not provide sufficient evidence to conclude that more than 55 percent of the population favor legalized gambling.In a two-tailed hypothesis test the area in each tail of the rejection region is equal to α.In a two-tailed hypothesis test the area in each tail of the rejection region is equal to α. | False

A company that sells an online course aimed at helping high-school students improve their SAT scores has claimed that SAT scores will improve by more than 90 points on average if students successfully complete the course. To test this, a national school counseling organization plans to select a random sample of n = 100 students who have previously taken the SAT test. These students will take the company's course and then retake the SAT test. Assuming that the population standard deviation for improvement in test scores is thought to be 30 points and the level of significance for the hypothesis test is 0.05, find the critical value in terms of improvement in SAT points, which would be needed prior to finding a beta. | Reject the null if SAT improvement is > 94.935 points.

For the following hypothesis test: With n = 80, σ = 9, and = 47.1, state the calculated value of the test statistic z. | 2.087

Hono Golf is a manufacturer of golf products in Taiwan and China. One of the golf accessories it produces at its plant in Tainan Hsing, Taiwan, is plastic golf tees. The injector molder produces golf tees that are designed to have an average height of 66 mm. To determine if this specification is met, random samples are taken from the production floor. One sample is contained in the file labeled THeight. Determine if the process is not producing the tees to specification. Use a significance level of 0.01. | Since t = 2.1953 < 2.8073 do not reject H0. There is not sufficient evidence to conclude that the average height of the plastic tees is different from 66 mm.

A mail-order business prides itself in its ability to fill customers' orders in six calendar days or less on the average. Periodically, the operations manager selects a random sample of customer orders and determines the number of days required to fill the orders. Based on this sample information, he decides if the desired standard is not being met. He will assume that the average number of days to fill customers' orders is six or less unless the data suggest strongly otherwise. On one occasion where a sample of 40 customers was selected, the average number of days was 6.65, with a sample standard deviation of 1.5 days. Can the operations manager conclude that his mail-order business is achieving its goal? Use a significance level of 0.025 to answer this question. | Since 2.7406 > 2.023, reject H0 and conclude that the mail-order business is not achieving its goal.

A local medical center has advertised that the mean wait for services will be less than 15 minutes. Given this claim, the hypothesis test for the population mean should be a one-tailed test with the rejection region in the lower (left-hand) tail of the sampling distribution. | True

According to CNN business partner Careerbuilder.com, the average starting salary for accounting graduates in 2008 was at least $47,413. Suppose that the American Society for Certified Public Accountants planned to test this claim by randomly sampling 200 accountants who graduated in 2008.Compute the power of the hypothesis test to reject the null hypothesis if the true average starting salary is only $47,000. Assume that the population standard deviation is known to be $4,600 and the test is to be conducted using an alpha level equal to 0.01. | 0.1446

When the decision maker has control over the null and alternative hypotheses, the alternative hypotheses should be the "research" hypothesis. | True

Waiters at Finegold's Restaurant and Lounge earn most of their income from tips. Each waiter is required to "tip-out" a portion of tips to the table bussers and hostesses. The manager has based the "tip-out" rate on the assumption that the mean tip is at least 15% of the customer bill. To make sure that this is the correct assumption, he has decided to conduct a test by randomly sampling 60 bills and recording the actual tips.  
State the appropriate null and alternative hypotheses. | H0 : μ ≥ 15 Ha : μ < 15

A major issue facing many states is whether to legalize casino gambling. Suppose the governor of one state believes that more than 55% of the state's registered voters would favor some form of legal casino gambling. However, before backing a proposal to allow such gambling, the governor has instructed his aides to conduct a statistical test on the issue. To do this, the aides have hired a consulting firm to survey a simple random sample of 300 voters in the state. Of these 300 voters, 175 actually favored legalized gambling.State the appropriate null and alternative hypotheses. | H0 : p ≤ 0.55 Ha : p > 0.55

The makers of Mini-Oats Cereal have an automated packaging machine that can be set at any targeted fill level between 12 and 32 ounces. Every box of cereal is not expected to contain exactly the targeted weight, but the average of all boxes filled should. At the end of every shift (eight hours), 16 boxes are selected at random and the mean and standard deviation of the sample are computed. Based on these sample results, the production control manager determines whether the filling machine needs to be readjusted or whether it remains all right to operate. At the end of a particular shift during which the machine was filling 24-ounce boxes of Mini-Oats, the sample mean of 16 boxes was 24.32 ounces, with a standard deviation of 0.70 ounce. Assist the production control manager in determining if the machine is achieving its targeted average at alpha = 0.05. | Process is running okay, do not reject H0

For the following z-test statistic, compute the p-value assuming that the hypothesis test is a one-tailed test: z = -1.55. | 0.0606

A bank is interested in determining whether their customers' checking balances are linearly related  
to their savings balances. A sample of n = 20 customers was selected and the correlation was  
calculated to be +0.40. If the bank is interested in testing to see whether there is a significant linear  
relationship between the two variables using a significance level of 0.05, what is the value of the  
test statistic? | 1.8516

Two variables have a correlation coefficient that is very close to zero. This means that there is no relationship between the two variables. | F

Both a scatter plot and the correlation coefficient can distinguish between a curvilinear and a linear relationship. | F

State University recently randomly sampled ten students and analyzed grade point average (GPA) and number of hours worked off-campus per week. The following data were observed: GPA HOURS 3.14 25 2.75 30 3.68 11 3.22 18 2.45 22 2.80 40 3.00 15 2.23 29 3.14 10 2.90 0 The correlation between these two variables is approximately -.461 | T

If a set of data contains no values of x that are equal to zero, then the regression coefficient, b0, has no particular meaning. | T

A study was recently performed by the Internal Revenue Service to determine how much tip income waiters and waitresses should make based on the size of the bill at each table. A random sample of bills and resulting tips were collected and the following regression results were observed: SUMMARY OUTPUT Given this output, the point estimate for the average tip per dollar amount of the bill is approximately $0.21. | T

An industry study was recently conducted in which the sample correlation between units sold and marketing expenses was 0.57. The sample size for the study included 15 companies. Based on the sample results, test to determine whether there is a significant positive correlation between these two variables. Use an alpha = 0.05 **|** Because t = 2.50 > 1.7709, reject the null hypothesis. There is sufficient evidence to conclude there is a positive linear relationship between sales units and marketing expense for companies in this industry.

If two variables are highly correlated, it not only means that they are linearly related, it also means that a change in one variable will cause a change in the other variable. **|** False

The following regression output is available. Notice that some of the values are missing. Given this information, what percent of the variation in the y variable is explained by the independent variable? **|** Approximately 57 percent

In developing a scatter plot, the decision maker has the option of connecting the points or not. **|** False

You are given the following sample data for two variables:Y X 10 100 8 110 12 90 15 200 16 150 10 100 10 80 8 90 12 150 The sample correlation coefficient for these data is approximately r = 0.755 **|** True

If the correlation between two variables is known to be statistically significant at the 0.05 level, then the regression slope coefficient will also be significant at the 0.05 level. **|** True

A study was recently performed by the Internal Revenue Service to determine how much tip income waiters and waitresses should make based on the size of the bill at each table. A random sample of bills and resulting tips were collected. These data are shown as follows:Total Bill Tip $126 $19 $58 $11 $86 $20 $20 $3 $59 $14 $120 $30 $14 $2 $17 $4 $26 $2 $74 $16 Based upon these data, what is the approximate predicted value for tips if the total bill is $100? **|** $20.61

The scatter plot is a two dimensional graph that is used to graphically represent the relationship between two variables. **|** True

If it is known that a simple linear regression model explains 56 percent of the variation in the dependent variable and that the slope on the regression equation is negative, then we also know that the correlation between x and y is approximately -0.75. **|** True

You are given the following sample data for two variables: Y X 10 100 8 110 12 90 15 200 16 150 10 100 10 80 8 90 12 150 The regression model based on these sample data explains approximately 75 percent of the variation in the dependent variable. **|** False

If a sample of n = 30 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | About t = 2.80

In a study of 30 customers' utility bills in which the monthly bill was the dependent variable and the number of square feet in the house is the independent variable, the resulting regression model is = 23.40 + 0.4x. Based on this model, the expected utility bill for a customer with a home with 2,300 square feet is approximately $92.00. **|** False

A dependent variable is the variable that we wish to predict or explain in a regression model. **|** True

A correlation of -0.9 indicates a weak linear relationship between the variables. | F

**Use the following regression results to answer the question below.** How many observations were involved in this regression? | 8

When a correlation is found between a pair of variables, this always means that there is a direct cause and effect relationship between the variables. | F

A perfect correlation between two variables will always produce a correlation coefficient of +1.0 | F

When constructing a scatter plot, the dependent variable is placed on the vertical axis and the independent variable is placed on the horizontal axis. | T

In a university statistics course a correlation of -0.8 was found between numbers of classes missed and course grade. This means that the fewer classes students missed, the higher the grade. | T

A study was recently done in which the following regression output was generated using Excel. SUMMARY OUTPUT Given this, we know that approximately 57 percent of the variation in the y variable is explained by the x variable. | T

The difference between a scatter plot and a scatter diagram is that the scatter plot has the independent variable on the x-axis while the independent variable is on the Y-axis in a scatter diagram. | F

A research study has stated that the taxes paid by individuals is correlated at a .78 value with the age of the individual. Given this, the scatter plot would show points that would fall on straight line on a slope equal to .78. | False

A bank is interested in determining whether its customers' checking balances are linearly related to their savings balances. A sample of n = 20 customers was selected and the correlation was calculated to be +0.40. If the bank is interested in testing to see whether there is a significant linear relationship between the two variables using a significance level of 0.05, the value of the test statistic is approximately t = 1.8516. | T

A study was recently done in which the following regression output was generated using Excel. SUMMARY OUTPUT Given this output, we would reject the null hypothesis that the population regression slope coefficient is equal to zero at the alpha = 0.05 level. | T

If two variables are spuriously correlated, it means that the correlation coefficient between them is near zero. | F

**The correlation coefficient between variables X and Y is positive and close to 1. The relationship between the variables X and Y is \_ | a strong linear relationship and as X increases, Y increases**

**The following regression model has been computed based on a sample of twenty observations: = 34.2 + 19.3x. The first observations in the sample for y and x were 300 and 18, respectively. Given this, the residual value for the first observation is approximately 81.6. | F**

**An article reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 33% would like more discussion about the family’s financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers . Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. Let z0.005 = 2.58 and z0.01 = 2.33 | (0.317, 0.423)**

A study was recently performed by the Internal Revenue Service to determine how much tip income waiters and waitresses should make based on the size of the bill at each table. A random sample of bills and resulting tips were collected and the following regression results were observed: SUMMARY OUTPUT Given this output, the upper limit for the 95 percent confidence interval estimate for the true regression slope coefficient is approximately 0.28. | T

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Defects Production Rate Per Hour 20 400 30 450 10 350 20 375 30 400 25 400 30 450 20 300 10 300 40 300 Given these sample data, the simple linear regression model for predicting the number of defects is approximately = 5.67 + 0.048x. | T

The following regression model has been computed based on a sample of twenty observations: = 34.2 + 19.3x. Given this model, the predicted value for y when x = 40 is 806.2. | T

**Casualty data from the great flu epidemic of 1918 were collected for study. This represents what type of study? | Retrospective**

**The population is | The complete collection of all elements.**

**A self-selected study is a source of bias in which factor of statistical analysis? | Sampling method.**

**Which is an example of quantitative data? | Weights of high school students.**

**Which is not an example of continuous data? | Number of students in an algebra class.**

**Questions on a survey are scored with integers 1 thru 5 with 1 representing Strongly Disagree and 5 Strongly Agree. This is an example of what kind of measurement? | Ordinal.**

**In a large lecture room class of 300 students, a sample of 10 was taken to determine the male/female make up of the class. Which misuse of statistics does this represent? | Small samples.**

**At a security checkpoint to a government facility, every 10th individual was more thoroughly searched than the others. What type of sampling is this? | Systematic.**

**A sample of households is selected and the average (mean) number of people per household is 2.58 (based on data from the U.S. Census Bureau. | Statistic**

**The mean weight of pennies currently being minted is 2.5 grams. | Continuous data**

**Fifty letters were sent as part of an experiment, three of them arrived at the target address. | Discrete data**

**Numbers on the shirts of marathon runners. | Nominal**

**Salaries of women who are chief executive officers of corporations. | Ratio**

**The current temperature in the 50 state capitol cities. | Interval**

**Casualty data from the great flu epidemic of 1918 were collected for study. This represents what type of study? | Retrospective**

**The probability of a New York teenager owning a skateboard is 0.37, of owning a bicycle is 0.81 and of owning both is 0.36. If a New York teenager is chosen at random, what is the probability that the teenager owns a skateboard or a bicycle? |** 0.82

The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution for the number of skiers that are injured each weekend: Injured Skiers Probability 0 0.05 1 0.15 2 0.40 3 0.30 4 0.10 Based on this information, what is the expected number of injuries per weekend? | 2.25

2) The number of customers that arrive at a fast-food business during a one-hour period is known to be Poisson distributed with a mean equal to 8.60. What is the probability that 2 or 3 customers will arrive in one hour? | 0.0263

3) The following probability distribution has been assessed for the number of accidents that occur in a mid western city each day: Accidents Probability 0 0.25 1 0.20 2 0.30 3 0.15 4 0.10 Based on this probability distribution, the standard deviation in the number of accidents per day is: | None of the others.

4) Let X be a discrete uniform random variable on the interval [2; 20]. a) Find P(X <13). b) Find the mean and standard deviation of X. | 11 & 5.477

5) A total of 12 cells are replicated. Freshly-synthesized DNA cannot be replicated again until mitosis is completed. Two control mechanisms have been identified- one positive and one negative- that are used with equal probability. Assume that each cell independently uses a control mechanism.What is the mean and variance of the number of cells use a positive control mechanism? | C)6 and 3

6) Bill Price is a sales rep in northern California representing a line of athletic socks. Each day, he makes 10 sales calls. The chance of making sale on each call is thought to be 0.30. What is the probability that he will make exactly two sales?. | D) 0.2335

7) Bill Price is a sales rep in northern California representing a line of athletic socks. Each day, he makes 10 sales calls. The chance of making sale on each call is thought to be 0.30. Find the probability that the first sale call is the fourth call. | 0.1029

8) The Ski Patrol at Criner Mountain Ski Resort has determined the following probability distribution for the number of skiers that are injured each weekend: Injured Skiers (X) Probability 0 0.05 1 0.15 2 0.40 3 0.30 4 0.10 Based on this information, find F(3). | None of the others.

9) A clinical trial involves 30 patients. Ten of the 30 are diabetic. If a researcher selects 6 patients at random, what is the probability that three or more of the 6 are diabetic? | **(0.3064)**

The time it takes to assemble a children's bicycle by a parent has been shown to be normally distributed with a mean equal to 295 minutes with a standard deviation equal to 45 minutes. Given this information, what is the probability that it will take a randomly selected parent between 300 and 340 minutes?. Let P(Z < 0) = 0.5000, P(Z <0.11 ) = 0.5438, P(Z <1 ) = 0.8413 | 0.2975

Let X be a normal distribution with the mean of 4 and the variance of 9. Find the value of x such that P(x < X < 7) = 0.5. Let P(Z < 0) = 0.5, P(Z < 1) = 0.8413, P(Z < -0.4) = 0.3413. | 2.8

If the time it takes for a customer to be served at a fast-food chain business is thought to be uniformly distributed between 3 and 8 minutes, what is the probability that the time it takes for a randomly selected customer will be less than 5 minutes? | 0.40

4) The manager of a computer help desk operation has collected enough data to conclude that the distribution of time per call is normally distributed with a mean equal to 8.21 minutes and a standard deviation of 2.14 minutes. The manager has decided to have a signal system attached to the phone so that after a certain period of time, a sound will occur on her employees' phone if she exceeds the time limit. The manager wants to set the time limit at a level such that it will sound on only 8 percent of all calls. Let P(Z < 1.41) = 0.92, P(Z < -1.41) = 0.08, the time limit should be: | about 11.23 minutes.

5) Let X be a continuous random variable with the probability density function . Find a | 1



6) Suppose that a continuous random variable X has probability density function f(x) = 4x3 (0 < x < 1). Find E(X) & V(X) | 0.8 & 0.027

7) Let  be a cumulative distribution function of a continuous random variable X.Find P( X < 0.7). | 0.2401

8) Let X be a random variable that have exponential distribution with mean 3. Find P(X > 1). | None of the others.

Let X be a random variable that has the density function f(x) = 2e^-2x,x > 0. Denote F(x) the cummulative distribution function of X. Calculate F(0.75). | 0.2231

You are given the following data: 23 34 11 40 25 47 Assuming that these data are a sample selected from a larger population, the median value for these sample data is .......... | 29.5

3) Suppose a study of houses that have sold recently in your community showed the following frequency distribution for the number of bedrooms: Bedrooms Frequency 1 18 140 57 11 Based on this information, determine the mode for the data. | 3

4) The Good-Guys Car Dealership has tracked the number of used cars sold at its downtown dealership. Consider the following data as representing the population of cars sold in each of the 8 weeks that the dealership has been open. 3 5 2 7 7 7 9 0.What is the population standard deviation approximately? | 3 cars

5) You are given the following data: 23 34 11 40 25 47 Assuming that the data reflect a sample from a larger population, what is the sample mean? | 30

if we select a sample with sample size 40 from a population with mean of 20 and standard deviation of 5 then: | Sample mean will be approximately normally distributed with mean of 20 and standard deviation of 0.79.

The monthly electrical utility bills of all customers for the Far East Power and Light Company are known to be distributed as a normal distribution with mean equal to $87 a month and standard deviation of $36. If a statistical sample of n = 100 customers is selected at random, what is the probability that the mean bill for those sampled will exceed $75? Let P(Z < -3.33) = 0, P(Z < 0.33) = 0.63 and P(Z < -0.44) = 0.33. | About 1.00

A major tire manufacturer wishes to estimate the mean tread life in miles for one of their tires. They wish to develop a confidence interval estimate that would have a maximum sampling error of 500 miles with 90 percent confidence. Let population standard deviation equal to 4,000 miles. Based on this information and let z0.05 = 1.645, the required sample size is: | 174.

2) Given  = 15.3, s = 4.7, and n = 18, form a 99% confidence interval for σ2. Let X^2 0.005;17 = 35.72; X^2 0.995;17 = 5.70| (10.51, 65.88) C) (2.24, 14.02) D) (11.13, 69.79)

In an application to estimate the mean number of miles that downtown employees commute to work roundtrip each day, the following information is given: n = 20;  = 4.33; s = 3.50. Based on this information and let t0.025,19 = 2.09, the upper limit for a 95 percent confidence interval estimate for the true population mean is: | about 5.97 miles.

A survey of 865 voters in one state reveals that 408 favor approval of an issue before the

legislature. Construct the 95% confidence interval for the true proportion of all voters in

the state who favor approval | 0.438 < p < 0.505

In an application to estimate the mean number of miles that downtown employees commute to work roundtrip each day, the following information is given: n = 20; x ^ - = 4.33; s = 3.50; the population is normally distributed. The Confidence Interval on the true population mean with the confident level of 94% is: | (2.76; 5.90)

Find the minimum sample size you should use m assure that your estimate at p^ will be within the required margin of error arround the population p. | 204,750

Your statistics instructor claims that 60 percent of the students who take her Elementary Statisticsclass go through life feeling more enriched. For some reason that she can't quite figure out, most people don't believe her. You decide to check this out on your own. You randomly survey 64 of her past Elementary Statistics students and find that 34 feel more enriched as a result of her class. Assume that significance level of 0.05 (z0.025 = 1.96, z0.05 = 1.65). Which of the following states is true? | The value of the test statistic is -1.123. There is sufficient evidence to support your statistic instructor's claim

According to an article in Newsweek, the natural ratio of girls to boys is 100:105. In Vietnam, the birth ratio is 100: 114 (46.7% girls). Suppose you don't believe the reported figures of the percent of girls born in Vietnam. You think that the percent of girls born in Vietnam is less than 46.7%. You conduct a study. In this study, you count the number of girls and boys born in 150 randomly chosen recent births. There are 60 girls and 90 boys born of the 150. Based on the results, draw your conclusion. Use α = 2% (z0.01 = 2.33 and z0.02 = 2.05). | The percent of girls born in Vietnam is more than 46.7%

When a new drug is created, the pharmaceutical company must subject it to testing before receiving the necessary permission from the Food and Drug Administration (FDA) to market the drug. Suppose the null hypothesis is "the drug is unsafe." What is the Type II Error? | To claim the drug is unsafe when, in fact, it is safe.

An assembly line produces widgets with a mean weight of 10 and a standard deviation of 0.2. A new process supposedly will produce widgets with the same mean and a smaller standard deviation. A sample of 20 widgets produced by the new method has a sample standard deviation of 0.126. At a significance level of 10%, what is the value of the test statistic ? | 7.54

The cost of a college education has increased at a much faster rate than costs in general over the past twenty years. In order to compensate for this, many students work part- or full-time in addition to attending classes. At one university, it is believed that the average hours students work per week exceeds 20. To test this at a significance level of 0.05 (t0.025,19 = 2.09 and t0.05,19 = 1.73), a random sample of n = 20 students was selected and the following values were observed: 26 15 10 40 10 20 30 36 40 0 5 10 20 32 16 12 Based on these sample data, the critical value: | is equal to 1.73.

A soft drink company has a filling machine that can be set at different levels to produce different average fill amounts. The company sets the machine to provide a mean fill of 15 ounces. The standard deviation on the machine is known to be 0.20 ounces. Assuming that the hypothesis test is to be performed using a random sample of n = 100 cans, which of the following would be the correct formulation of the null and alternative? | H0 : µ = 15 H1 : µ ≠15 ounces

A bank is interested in determining whether their customers' checking balances are linearly related to their savings balances. A sample of n = 20 customers was selected and the correlation was calculated to be +0.40. If the bank is interested in testing to see whether there is a significant linear relationship between the two variables using a significance level of 0.05, what is the value of the test statistic? | 1.8516 C) 1.645 D) 2.438

The following regression model has been computed based on a sample of twenty observations: = 34.2 + 19.3x. The first observations in the sample for y and x were 300 and 18, respectively. Given this, the residual value for the first observation is approximately …. | -81.6

3) State University recently randomly sampled seven students and analyzed grade point average (GPA) and number of hours worked off-campus per week. The following data were observed: y-GPA : 3 2.8 3.7 2.5 x-Hours: 25 30 11 22 Find the simple linear regression equation based on these sample data.. | = 4.05 - 0.05x

Over a period of one year, a greengrocer sells tomatoes at six different prices (x pence per kilogram). He calculates the average number of kilograms, y, sold per day at each of the six different prices. From these data the following are calculated x1 = 200 , yi = 436 , xiyi = 12515 ; xi ^ 2 = 7250 ; yi^2 = 39234 ; n = 6 Estimate the correlation coefficient. | -0.962

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Sampling distributions describe the distribution of | statistics.

The Central Limit Theorem is important in statistics because | for a large n, it says the sampling distribution of the sample mean is approximately normal, regardless of the shape of the population.

For air travelers, one of the biggest complaints involves the waiting time between when the airplane taxis away from the terminal until the flight takes off. This waiting time is known to have a skewed-right distribution with a mean of 10 minutes and a standard deviation of 8 minutes. Suppose 100 flights have been randomly sampled. Describe the sampling distribution of the mean waiting time between when the airplane taxis away from the terminal until the flight takes off for these 100 flights. | A

Which of the following statements about the sampling distribution of the sample mean is INCORRECT? | The standard deviation of the sampling distribution of the sample mean is equal to σ.

Suppose the ages of students in Statistics 101 follow a skewed-right distribution with a mean of 23 years and a standard deviation of 3 years. If we randomly sampled 100 students, which of the following statements about the sampling distribution of the sample mean age is INCORRECT? | The shape of the sampling distribution is approximately normal.

A sample that does not provide a good representation of the population from which it was collected is referred to as a(n) \_\_\_\_\_\_\_\_\_\_ sample. | biased

Suppose a sample of n = 50 items is drawn from a population of manufactured products and the weight, X, of each item is recorded. Prior experience has shown that the weight has a probability distribution with μ = 6 ounces and σ = 2.5 ounces. Which of the following is true about the sampling distribution of the sample mean if a sample of size 15 is selected? | The mean of the sampling distribution is 6 ounces.  
8) Major league baseball salaries averaged $1.5 million with a standard deviation of $0.8 million in 1994. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1 million. | Approximately 1

Tosing a coin 3 times . Let A denote the event exactly 2 heads are thrown. List the sample points in A. (H = Head, T = Tail) | {HHT, HTH, THH}

A large software development firm recently relocated its facilities . Top management is interested in fostering good relatious with its new local community and has encouraged its professional employees to engage in local service activities. The company believes that its professionals volunteer an average of more than 15 hours per month. If this is not the case, it will institute an incentive program to increase community involvement. The correct null and alternative hypotheses are (i) H0: u < 15 and H1 : u > 15 (ii) H0 : u = 15 and H1 : u > 15 (iii) H0 : u = 15 and H1 : u < 15 (iv) H0 : u != 15 and H1 : u = 15 | (ii)  
9) At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeters. A random sample of 12 computer chips is taken. What is the probability that the sample mean will be between 0.99 and 1.01 centimeters? | 0.2710

10) The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and a standard deviation of 0.8 pounds. If a sample of 16 fish is taken, what would the standard error of the mean weight equal? | 0.200 

11) The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and a standard deviation of 0.8 pounds. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | 0.0228

12) The standard error of the mean for a sample of 100 is 30. In order to cut the standard error of the mean to 15, we would | increase the sample size to 400.B) decrease the sample size to 50.

13) Which of the following is true regarding the sampling distribution of the mean for a large sample size? | It has a normal distribution with the same mean as the population but with a smaller standard deviation.  
14) True or False: Suppose μ = 50 and σ2 = 100 for a population. In a sample where n = 100 is randomly taken, 95% of all possible sample means will fall between 48.04 and 51.96. | True 

15) True or False: Suppose μ = 50 and σ2 = 100 for a population. In a sample where n = 100 is randomly taken, 90% of all possible sample means will fall between 49 and 51. | False

16) The width of a confidence interval estimate for a proportion mean will be | narrower for 90% confidence than for 95% confidence.  
17) If you were constructing a 99% confidence interval of the population mean based on a sample of n = 25, where the standard deviation of the sample s = 0.05, the critical value of t will be | 2.7970 

18) The t distribution has more area in the tails than does the standard normal distribution. assumes the population is normally distributed. approaches the normal distribution as the sample size increases. | all of the above

20) When determining the sample size necessary for estimating the true population mean, which factor is NOT considered when sampling with replacement? | the population size   
21) Suppose a 95% confidence interval for μ turns out to be (1,000, 2,100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | increase the sample size and decrease the confidence level

22) In the construction of confidence intervals, if all other quantities are unchanged, an increase in the sample size will lead to a \_\_\_\_\_\_\_\_\_\_ interval. | narrower   
23) A major department store chain is interested in estimating the average amount its credit card customers spent on their first visit to the chain's new store in the mall. Fifteen credit card accounts were randomly sampled and analyzed with the following results: X (line over it) = $50.50 and s2 = 400. Assuming the distribution of the amount spent on their first visit is approximately normal, what is the shape of the sampling distribution of the sample mean that will be used to create the desired confidence interval for μ? | a t distribution with 14 degrees of freedom   
24) Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in the United States revealed the following endowments (in millions of dollars): 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. Summary statistics yield = 180.975 and s = 143.042. Calculate a 95% confidence interval for the mean endowment of all the private colleges in the United States, assuming a normal distribution for the endowments. | $180.975 ± $119.605

25) A university system enrolling hundreds of thousands of students is considering a change in the way students pay for their education. Presently the students pay $55 per credit hour. The university system administrators are contemplating charging each student a set fee of $750 per quarter, regardless of how many credit hours each takes. To see if this proposal would be economically feasible, the administrators would like to know how many credit hours, on the average, each student takes per quarter. A random sample of 250 students yields a mean of 14.1 credit hours per quarter and a standard deviation of 2.3 credit hours per quarter. Suppose the administration wanted to estimate the mean to within 0.1 hours at 95% reliability and assumed that the sample standard deviation provided a good estimate for the population standard deviation. How large a sample would they need to take? | n = 2033

26) An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1,000. A random sample of 50 individuals resulted in an average income of $15,000. What is the width of the 90% confidence interval? | $465.23   
27) The head librarian at the Library of Congress has asked her assistant for an interval estimate of the mean number of books checked out each day. The assistant provides the following interval estimate: from 740 to 920 books per day. What is an efficient, unbiased point estimate of the number of books checked out each day at the Library of Congress? | 830

28) The head librarian at the Library of Congress has asked her assistant for an interval estimate of the mean number of books checked out each day. The assistant provides the following interval estimate: from 740 to 920 books per day. If the head librarian knows that the population standard deviation is 150 books checked out per day, and she asked her assistant for a 95% confidence interval, approximately how large a sample did her assistant use to determine the interval estimate? | 11

29) True or False: A race car driver tested his car for time from 0 to 60 mph, and in 20 tests obtained an average of 4.85 seconds with a standard deviation of 1.47 seconds. A 95% confidence interval for the 0 to 60 time is 4.52 seconds to 5.18 seconds. | False

30) True or False: Given a sample mean of 2.1 and a population standard deviation of 0.7, a 90% confidence interval will have a width of 2.36. | False

31) Which of the following would be an appropriate null hypothesis? | The mean of a population is equal to 55.  
32) Which of the following would be an appropriate alternative hypothesis? | The mean of a population is greater than 55.

33) A Type I error is committed when | we reject a null hypothesis that is true.

34) The power of a test is measured by its capability of | rejecting a null hypothesis that is false.

35) True or False: For a given level of significance, if the sample size is increased, the probability of committing a Type II error will increase. | False

36) If an economist wishes to determine whether there is evidence that average family income in a community exceeds $25,000 | a one-tailed test should be utilized.  
37) If an economist wishes to determine whether there is evidence that average family income in a community equals $25,000 | a two-tailed test should be utilized.  
38) If the Type I error (α) for a given test is to be decreased, then for a fixed sample size n | the Type II error (β) will increase.   
39) The power of a statistical test is | the probability of rejecting H0 when it is false.  
40) How many Kleenex should the Kimberly Clark Corporation package of tissues contain? Researchers determined that 60 tissues is the average number of tissues used during a cold. Suppose a random sample of 100 Kleenex users yielded the following data on the number of tissues used during a cold: = 52, s = 22. Give the null and alternative hypotheses to determine if the number of tissues used during a cold is less than 60. | H0 : μ ≥ 60 and H1 : μ < 60  
41) How many Kleenex should the Kimberly Clark Corporation package of tissues contain? Researchers determined that 60 tissues is the average number of tissues used during a cold. Suppose a random sample of 100 Kleenex users yielded the following data on the number of tissues used during a cold: = 52, s = 22. Using the sample information provided, calculate the value of the test statistic. | t = (52 - 60)/22   
42) How many Kleenex should the Kimberly Clark Corporation package of tissues contain? Researchers determined that 60 tissues is the average number of tissues used during a cold. Suppose a random sample of 100 Kleenex users yielded the following data on the number of tissues used during a cold: = 52, s = 22. Suppose the test statistic does fall in the rejection region at α = 0.05. Which of the following decisions is correct? | At α = 0.05, we reject H0.

43) How many Kleenex should the Kimberly Clark Corporation package of tissues contain? Researchers determined that 60 tissues is the average number of tissues used during a cold. Suppose a random sample of 100 Kleenex users yielded the following data on the number of tissues used during a cold: = 52, s = 22. Suppose the test statistic does fall in the rejection region at α = 0.05. Which of the following conclusions is correct? | At α = 0.05, there is not sufficient evidence to conclude that the average number of tissues used during a cold is 60 tissues.At α = 0.10, there is sufficient evidence to conclude that the average number of tissues used during a cold is not 60 tissues.  
44) If, as a result of a hypothesis test, we reject the null hypothesis when it is false, then we have committed | no error.

The on-line acess computer service industry is growing at an extraordinary rate. current estimates suggest that 20% of people with home-based computers have access to on-line services. suppose that 15 people with home-based computers were randomly and independently sampled. what is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.1032  
A batch of parts contains 100 parts from a local supplier of tubing and 200 parts from a supplier of tubing in the next state. | 0.11

The weekly demand for pepsi in thousand liters from a local store is continuous random variable X having one probability density. f(x) = 2(x-1) if 1<x<2 0 if elsewhere . Find the variance of X. | 1/18

If we know that the length of time it takes a college student to find a parking spot in the library parking lot follows a normal distribution with a mean of 3.5 minutes and a standard deviation of 1 minute, find the point in the distribution in which 75.8% and more of the college students succeed when trying to find a parking spot in the library parking lot. Let P(Z < -0.7) = 0.242, P(Z < -0.1) = 0.460 and P (Z < 0.7) = 0.758. | 2.8 minutes

Entertainment Software Association would like to test if the standard deviation for the age of gamers is equal to 5.0 years. The standard deviation for the age from a random sample of 20 gamers is 5.6 years. Using the significance level of 0.10, find the lower critical value for this hypothesis test. Let x^2 0.05,19 = 30.14; x^2 0.95,19 = 10.117; x^2 0.9,19 = 11.651 | 10.117

1) Whenever p = 0.1 and n is small, the binomial distribution will be |right-skewed

2) Suppose that past history shows that 60% of college students prefer Brand C cola. A sample of 5 students is to be selected. The probability that at least 1 prefers brand C is \_\_\_\_\_\_\_\_\_\_. | 0.9898

3) Suppose that past history shows that 60% of college students prefer Brand C cola. A sample of 5 students is to be selected. The average number that you would expect to prefer brand C is \_\_\_\_\_\_\_\_\_\_. | 3

TABLE 5-3 The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0123 P(X) 0.35 0.35 0.25 0.05 4) Referring to Table 5-3, the probability of at least one retransmission is | 0.65

5) Referring to Table 5-3, the mean or expected value for the number of retransmissions is \_\_\_\_\_\_\_\_\_\_. | 1.0

6) Referring to Table 5-3, the standard deviation of the number of retransmissions is \_\_\_\_\_\_\_\_\_\_. | 0.894

8) If we know that the length of time it takes a college student to find a parking spot in the library parking lot follows a normal distribution with a mean of 3.5 minutes and a standard deviation of 1 minute, find the probability that a randomly selected college student will take between 2 and 4.5 minutes to find a parking spot in the library parking lot. | 0.7745

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent. The distribution of $$\overline{X} $$- $$\overline{Y}$$ is | b. normal with mean 0 and standard deviation 5/6.

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | a. 2.6

Survey responses of “ good, better, best”. which type of data is? | c. Ordinal

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 20; p = 3/5 | c. 12.0

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. | a. 0.1587

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean temperature is different from 45°F

A bag of colored candies contains 20 red, 25 yellow, and 35 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | b. {red, yellow, orange}

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | c. 0.036

The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $$\mu= 110$$ grams and $$\sigma = 25$$ grams. A sample of vitamins is to be selected. What is the probability that the sample mean will be less than 100 grams? Let $$P(Z<-2)=0.023;P(Z<-0.4)=0.421;P(Z<0.07)=0.529;P(Z<0.75)=0.673$$. | a. 0.023

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the expected number of wins for the player? | c. 2.31

Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children’s clothing should be manufactured and marketed in larger sizes. If $$X$$ is the weight of school children sampled in a nationwide study, then $$X$$ is an example of | d. a continuous random variable.

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | d. 1.55

Find the critical value or values of x2 based on the given information. H1: σ < 0.629 n = 19 α = 0.025 | b. 8.231

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. What is the probability that a randomly chosen widget produced by the company is defective? | d. 0.1175

The grade point averages for 10 randomly selected students are listed below. Construct a 90% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 | b. (0.81, 1.83)

For large numbers of degrees of freedom, the critical χ2 values can be approximated as follows: χ2 = (z + )2, where k is the number of degrees of freedom and z is the critical value. To find the lower critical value, the negative z-value is used, to find the upper critical value, the positive z-value is used. Use this approximation to estimate the critical value of χ2 in a right-tailed hypothesis test with n =125 and α = 0.01. | a. χ2 ≈ 162.833

Which statement is true for the scores of 1, 2, 3, 4, 5, 5, 7, 8, 9, and 10? | a. The mean is greater than the median.

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | c. parking times of the 130 students

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | a. 1.52

The standard IQ test has a mean of 96 and a standard deviation of 14. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | d. 34

An archer is able to hit the bull's-eye 55% of the time. If she shoots 8 arrows, what is the probability that she gets exactly 4 bull's-eyes? Assume each shot is independent of the others. | a. 0.2627

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | a. 0.7557

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.09 0.26 Democrat 0.22 0.2 Other 0.11 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | c. 0.214

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25,$$\overline{x} = 951,$$ s = 25. The sample data appear to come from a normally distributed population with σ = 28. | a. Normal

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | a. 0.89

Find the variance for the given probability distribution. x 0 1 2 3 4 P(x) 0.17 0.28 0.05 0.15 0.35 | d. 2.46

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 5.0 gallons and 6.0 gallons are pumped during a randomly selected minute. | d. 0.33

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $700 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $550. | d. 0.0013

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | c. 0.1210

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ < 0.14 n = 23 α = 0.10 | a. 14.042

The probabilities that a customer entering a particular bookstore buys 0, 1, 2, 3, 4, or 5 books are 0.30, 0.20, 0.20, 0.15, 0.10, and 0.05 respectively. For the probability distribution above, find the variance. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. 0.095089

A psychologist claims that more than 75 percent of the population suffers from professional problems due to extreme shyness. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to support the claim that the true proportion is greater than 75 percent.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | c. {2, 4, 6, 8, 10}

When conducting a t test for the correlation coefficient in a study with 16 individuals, the degrees of freedom will be | d. 14.

Suppose that $$X$$ is a negative binomial random variable with $$p = 0.2$$ and $$r = 4$$. Determine $$P(X=20)$$. | a. 0.0436

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. How many citizens would need to be sampled if a 95% confidence interval was desired to estimate the true proportion to within 5%? | a. 379

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2 and 12 minutes to park in the library lot. | d. 0.556744

A local bank needs information concerning the checking account balances of its customers. A random sample of 15 accounts was checked. The mean balance was $686.75 with a standard deviation of $256.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | d. ($513.17, $860.33)

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | b. 0.343

When considering area under the standard normal curve, decide whether the area to the left ofz =0.2is bigger than, smaller than, or equal to the area to the right ofz = -0.2 | c. equal to

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 11.5 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.5 gallons per minute? | a. 0.50

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | d. 98

If you were constructing a 99% confidence interval of the normal population mean based on a sample of $$n = 25$$ where the standard deviation of the sample $$s = 0.05$$. What is the critical value? Let $$t\_{0.005,24}=2.7969;t\_{0.01,24}=2.4922;z\_{0.01}=2.33; z\_{0.05}=2.58$$. | a. 2.7969

One year, professional sports players salaries averaged $1.5 million with a standard deviation of $0.7 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.1 million. | d. approximately 1

A random number generator is set top generate integer random numbers between 1 and 10 inclusive following a uniform distribution. What is the probability of the random number generator generating a 7? | c. 1/10

The probability is 0.7 that a person shopping at a certain store will spend less than $20. For random samples of 28 customers, find the mean number of shoppers who spend less than $20. | c. 19.6

According to a college survey, 22% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 16. | b. 1.66

Construct the cumulative frequency distribution that coressponds to the given frequency distribution | d.

A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? | a. 0.2503

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve to the right of 64. | d. 0.2525

In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, $$\sigma,$$ is 2.4. Construct the 95% confidence interval for the population mean. | b. (61.9, 64.9)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | a. descriptive statistics.

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces. | c. 7

Police estimate that 25% of drivers drive without their seat belts. If they stop 6 drivers at random, find the probability that all of them are wearing their seat belts. | a. 0.178

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | a. 0.4987

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 14 H1: μ < 14

A business venture can result in the following outcomes (with their corresponding chance of occurring in parentheses) Highly Successful (10%), Successful (25%), Break Even (25%), Disappointing (20%), and Highly Disappointing (?). If these are the only outcomes possible for the business venture, what is the chance that the business venture will be considered Highly Disappointing? | a. 20%

A researcher claims that 62% of voters favor gun control. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | gun control is 62% when it is actually different than 62%.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | d. all custormers

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $900 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $775.00 and $990.00? | c. .9579

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | c. 31.74%

In a random sample of 60 computers, the mean repair cost was $150 with a population standard deviation of $36. Construct a 99% confidence interval for the population mean. | b. ($138, $162)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 19 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8 years. | d. (19.9, 24.9)

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 647 drowning deaths of children with 30% of them attributable to beaches. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$. | d. 2.94

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | c. 99.7%

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1100 kWh and 1225 kWh. | c. 0.1971

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 2% using 99% reliability? | c. 4118

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of the seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the standard deviation is less than 14.7.

Suppose x is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | b. 0.7

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, $$\sigma^2.$$ Assume the data are normally distributed | a. (3.2, 26.3)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the number of ounces above which 80% of the dispensed sodas will fall. | c. 8.6

Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 30 H1: μ > 30

Which of the following is not true about the standard normal distribution? | b. The area under the standard normal curve to the left of z = 0 is negative.

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that at least two become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | b. 0.04

The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? | d. 0.4013

Both Fred and Ed have a bag of candy containing a lemon drop, a cherry drop, and a lollipop. Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | b. LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Using Excel to find three quartiles for the given data below: 1, 3, 6, 10, 15, 21, 28, 36. | b. 5.25, 12.5, 22.75

If the probability of a newborn child being female is 0.5, find the probability that in 100 births, 55 or more will be female. | b. 0.1841

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n =12, x = 5, p = 0.25 | d. 0.103

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $3.60 $4.50 $2.80 $6.30 $2.60 $5.20 $6.75 $4.25 $8.00 $3.00 Find the 95% confidence interval for the true mean. | b. ($3.39, $6.01)

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be "95% confident" in an inference. | c. In repeated sampling, 95% of the intervals constructed would contain the population mean.

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean. 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | d. 16

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 1.43. | c. 0.0764

The grade point averages for 10 randomly selected students in a statistics class with 125 students are listed below. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 What is the effect on the width of the confidence interval if the sample size is increased to 20? | b. The width decreases.

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 42.8 3 21.1 4 19.2 5 11.6 6 3.3 7+ 2.0 A family is selected at random. Find the probability that the size of the family is 4 or more. Round your result to three decimal places. | d. 0.361

Which of the following is true about the sampling distribution of the sample mean? | a. The mean of the sampling distribution is always μ.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 16 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. | c. (628.5, 661.5)

Survey responses of nationalities of survey respondents. which type of data is? | a. Nomial

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | d. 84.00%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 4, x = 3, p = 1/6 | a. 0.0154

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -1.83. | c. 0.0336

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | d. 1.23

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x 1 2 3 4 5 6 P(x) 0.16 0.19 0.22 0.21 0.12 0.10 | c. 2.36

The owner of a football team claims that the average attendance at games is over 67,800, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 50°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | c. The error of rejecting the claim that the mean temperature equals 50°F when it really does equal 50°F.

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students? | a. 0.0625

Flip a coin twice, create the sample space of possible outcomes. | a. HH HT TH TT

The number of power outages at a nuclear power plant has a Poisson distribution with a mean of 6 outages per year. The probability that there will be exactly 3 power outages in a year is | b. 0.0892

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | c. 1/6

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | d. 0.92

At one college, GPAs are normally distributed with a mean of 2.6 and a standard deviation of 0.4. What percentage of students at the college have a GPA between 2.2 and 3? | c. 68%

When is the correlation coefficient zero? | a. when there is no linear correlation

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed | d. regardless of the shape of the population.

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 26.1 n = 9 α = 0.01 | c. 20.090

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution $$N(\mu, 3300^2).$$ Compute $$P(\overline{X}-\overline{Y} <-2500).$$ | b. 0.0314

Find the mean of thefollowing probability distribution. x 0 1 2 3 4 P(x) 0.19 0.37 0.16 0.26 0.02 | c. 1.55

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | c. bigger than

Find the percentile for the data point. data set: 3 11 8 6 3 3 11 6 3 11 2 11 15 4 9 3 12 8 6 11 data point: 6 | b. 35

Find the critical value or values of x2 based on the given information. H0: σ = 8.0 n = 10 α = 0.01 | d. 1.735, 23.589

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. | d. (17.47, 21.73)

Let X be a random variable has the following uniform density function f(x) = 0.1 when 0< x < 10. What is the probability that the random variable X has a value greater than 5.3? | b. 0.47

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | b. Retrospective study

If you were constructing a 99% confidence interval of the population mean based on a sample of n=25 where the standard deviation of the sample s = 0.05, the critical value of t will be | b. 2.7969.

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.2 millimeters? | d. 0.65

Suppose that $$X$$ has the probability density function $$f(x)=1.5x^2$$ for $$-1 Chọn một câu trả lời | d. 0.125

Two white mice mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black Create the sample space of possible outcomes. | b. WW, BW

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to warrant rejection of the claim that the mean weight is at least

Flip a coin three times, create the sample space of possible outcomes. | c. HHH HHT HTH HTT THH THT TTH TTT

Find the standard deviation for the given probability distribution. x 0 1 2 3 4 P(x) 0.37 0.05 0.13 0.25 0.20 | a. 1.60

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.2-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.6 ounces. | a. approximately 0

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 4.0 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2.5 and 5.0 minutes to find a parking spot in the library lot. | c. 0.7745

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | b. 221

A psychologist claims that more than 3 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 3 percent when it is actually more than 3 percent.

According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered. | a. 0.044

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | d. 0.3174.

An entomologist writes an article in a scientific journal which claims that fewer than 16 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. |

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | c. descriptive statistics.

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.11 0.27 Democrat 0.25 0.16 Other 0.15 0.06 What is the probability that a Democrat opposes stronger gun control laws? | a. 0.390

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | d. 46 miles

We have created a 95% confidence interval for $$\mu$$ with the result (10, 15). What decision will we make if we test $$H\_0: \mu =16$$ versus $$H\_1: \mu eq 16$$ at $$\alpha= 0.05$$? | b. Reject $$H\_0$$ in favor of $$H\_1$$.

A researcher claims that 62% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.62 H1: p ≠ 0.62

In a binomial distribution with 10 trials, which of the following is true? | a. P(x > 7) = P(x ≥ 8)

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | c. 0.262

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(m, 33002). The distribution of the difference of the sample mean $$\overline{X}$$ - $$\overline{Y}.$$ | a. normal with mean 0 and standard deviation 1347.22

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a two-tailed test. | c. ±1.96

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | b. 0.57

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | b. 8.66

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | d. 0.082085

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | a. 1/9

According to the Center for Disease Control, 41.5% of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | a. 0.12

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | b. equal to

Let $$X$$ be uniformly distributed over [0, 1]. Calculate $$E[X^3]$$. | b. 0.25

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | c. 68%

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | a. 0.526

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? | d. 0.0166

The probability that a house in an urban area will be burglarized is 2%. If 29 houses are randomly selected, what is the probability that none of the houses will be burglarized? | a. 0.557

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | d. 0.0668

Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, and 8, a score of 4 is the | a. mean.

Compute the critical value $$z\_{\alpha/2}$$ that corresponds to a 94% level of confidence. | b. 1.88

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | b. independent but not disjoint.

A test consists of 10 true/false questions. To pass the test a student must answer at least 7 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | a. 0.172

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) Frequency 35-39 1 40-44 3 45-49 5 50-54 11 55-59 7 60-64 7 65-69 1 | b. 53.4

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 13.5 gallons per minute. Find the variance of the distribution. | b. 1.33

Friskie is having her fifth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes. | c. NNR NNN

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household own 2 cars is: | b. 0.69

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $25,000 a year is: | c. 0.12

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, $$\sigma.$$ | d. (2.2, 5.8)

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | c. bigger than

Find the standard deviation for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth. n = 2661; p = 0.63 | d. 24.91

Survey responses of temperatures of the ocean at various depths. which type of data is? | a. Interval

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | c. 0.400

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | d. 89.6

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeter. A random sample of 12 computer chips is taken. What is the standard error for the sample mean? | a. 0.029

Find z if the normal curve area to the right of z is 0.8997. | c. -1.2798

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | a. 76.4

Assume that blood pressure readings are normally distributed with a mean of 124 and a standard deviation of 6.4. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 126. | c. 0.9938

The probability of winning a certain lottery is 1/51949. For people who play 560 times, find the standard deviation for the random variable X, the number of wins. | b. 0.1038

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 100 marbles that has a mean diameter greater than 0.851 cm? | b. 0.1587

Suppose that a number of miles that a car can run before its battery wears out is exponentially distributed with an average value of 10000 miles. If a person desires to take a 5000-mile trip, what is the probability that she will be able to complete her trip without having to replace her car battery? | c. 0.6

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major Frequency Engineering 868 English 2073 Mathematics 2164 Chemistry 318 Physics 856 Liberal Arts 1358 Business 1676 What is the probability that a randomly selected degree is not in Mathematics? | b. 0.768

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | c. 0.6826

LetZ is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | c. 0.2237

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | c. 45.7

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that from two to four become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.034

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that more than 16 ounces is dispensed in a cup. | c. 0.1587

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 33; p = 0.2 | b. 6.6

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 6. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18.6 lb. | a. 0.6730

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is 5 years or more. | d. 0.229790

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | d. 0.19

Assume that the heights of women are normally distributed. A random sample of 20 women have a mean height of 62.5 inches and a standard deviation of 2.5 inches. Construct a 98% confidence interval for the population variance, $$\sigma^2.$$ | c. (3.3, 15.6)

Construct the boxplot for the given data below: 3, 3, 5, 6, 4, 9, 8, 9, 6. | d.

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | c. 1.67

Find the critical value or values of x2 based on the given information. H1: σ ≠ 9.3 n = 28 α = 0.05 | c. 14.573, 43.194

A population of Australian Koala bears has a mean height of 20 inches and a standard deviation of 4 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 20 and 21. | b. 0.4772

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the following table. X(girls) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 P(X) 0.000 0.001 0.006 0.022 0.061 0.122 0.183 0.209 0.183 0.122 0.061 0.022 0.006 0.001 0.000 Find the probability of selecting 9 or more girls. | c. 0.212

The random variableX represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable X. | a. mean: 1.50; standard deviation: 0.87

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.45 ounces of soda. Every can that has more than 12.45 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | c. 0.1587

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,825 hours. | a. 0.1056

A psychologist claims that more than 6.3 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 6.3% H1: p > 6.3%

A major videocassette rental chain is considering opening a new store in an area that currently does not have any such stores. The chain will open if there is evidence that more than 25% households in the area are equipped with videocassette recorders (VCRs). It conducts a telephone poll of 300 randomly selected households in the area and finds that 96 have VCRs. The value of the test statistic in this problem is approximately equal to | c. 2.80

Which of the following is a discrete quantitative variable? | d. The number of employees of an insurance company

Suppose that the probability that a particular brand of light bulb fails before 900 hours of use is 0.2. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 900 hours or more? | b. 0.992

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 49, σ = 12.3, and the original population is not normally distributed. | a. Yes

Which of the following is a continuous quantitative variable? | d. The amount of milk produced by a cow in one 24-hour period

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, $$\overline{x} = 101,$$ s = 15.3. The sample data appear to come from a population with a distribution that is very far from normal, and σ is unknown. | b. Neither

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.10. | a. 37.3

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at least one head? | a. 7/8

The owner of a football team claims that the average attendance at games is over 60,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 60,000, when it is actually greater than 60,000.

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | a. 2.5

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 50 individuals resulted in an average income of $15000. What is the width of the 90% confidence interval? | d. $465.23

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a right-tailed test. | b. +1.34

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | c. i) and iv)

An entomologist writes an article in a scientific journal which claims that fewer than 11 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.0011 H1: p < 0.0011

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | d. 0.59 ± 0.068

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | a. number of items - discrete; total time - continuous

An airline reports that it has been experiencing a 15% rate of no-shows on advanced reservations. Among 150 advanced reservations, find the probability that there will be fewer than 20 no-shows. | c. 0.251

The name of each contestant is written on a separate card, the cards are placed in a bag, and three names are picked from the bag. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | c. Random

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. |

A random sample of 40 students has a mean annual earnings of $3120 and a population standard deviation of $677. Construct the confidence interval for the population mean, μ. Use a 95% confidence level. | c. ($2910, $3330)

An economist is interested in studying the incomes of consumers in a particular region. The normally population standard deviation is known to be $1000. What total sample size would the economist need to use for a 95% confidence interval if the width of the interval should not be more than $100? Let $$z\_{0.025}=1.96; z\_{0.05}=1.65$$. | a. n = 1537

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | a. 0.254811

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. | c. 0.1469

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | c. 0.8

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 90\% confidence interval to estimate the true proportion of students who receive financial aid. Let $$z\_{0.1}=1.28;z\_{0.05}=1.65$$. | c. (0.533; 0.647)

To determine the mean of a binomial distribution, it is necessary to know the number of successes involved in the problem. | a. False

Which of the following is always true for a normal distribution? | b. P(2< x ≤ 8) = P(2 ≤ x < 8)

Find the normal-curve area between z = -1.48 and z = 0. | d. 0.4306

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that at least one chocolate bar was eaten. | a. 5/9

A study of 1000 randomly selected flights of a major airline showed that 782 of the flights arrived on time. What is the probability of a flight arriving on time? | a. 391/500

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | c. 1.96%

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation? | c. 12

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 1900 miles. What is the probability a certain tire of this brand will last between 56,010 miles and 56,580 miles? | b. 0.0180

According to a 2007 report published by the National Center on Addiction and Substance Abuse at Columbia University, 59% of teens have family dinners five or more times a week, 13% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.64. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | b. 0.08

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 45.1 3 22.2 4 19.7 5 8.0 6 3.1 7+ 1.9 A family is selected at random. Find the probability that the size of the family is less than 6. Round your result to three decimal places. | c. 0.950

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: σ = 14.7 H1: σ < 14.7

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | b. binomial distribution.

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | d. {0, 1, 2}

The use of the Poisson distribution requires a value n which indicates a definite number of independent trials. | a. False

The process of using sample statistics to draw conclusions about true population parameters is called | d. statistical inference.

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 65% with a standard deviation of 7.1. Assuming that the distribution is normal, what percentage of states had between 50 and 70 percent of it's voting-age population who were registered to vote? | a. 0.74

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | c. Observation study

According to a college survey, 22% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 16. | d. 3.52

The following table contains the probability distribution for X = the number of traffic accidents reported in a day in Hanoi. X 0 1 2 3 4 5 P(X) 0.10 0.20 0.45 0.15 0.05 0.05 The probability of more than 2 accidents is | d. 0.25

A Type II error is committed when | c. we don't reject a null hypothesis that is false.

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 0.52. | b. 0.3015

| d.

According to the Center for Disease Control, in 2004, 65.7% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if two randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | d. 0.88

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | c. 0.37 ± .053

Which of the following is not true of statistics? | c. Statistics is used to answer questions with 100% certainty.

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers. | a. (189.5, 194.5)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that between 15 and 18 ounces are dispensed in a cup. | c. 0.1598

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | c. 0.625

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence? | a. 150

The area to the right of z = 1.0 is equal to | a. 0.1587.

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -2.05. | b. 0.0202

Suppose that11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | c. 0.1139

A survey of senior citizens at a doctor's office shows that 52% take blood pressure-lowering medication, 43% take cholesterol-lowering medication, and 5% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | d. 0.90

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 2.2 inches. Construct a 99% confidence interval for the population standard deviation. Let $$\chi\_{0.005,15}^2=32.8;\chi\_{0.995,15}^2=4.6$$. | a. (1.5, 4.0)

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | b. 0.8708

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | d. 0.0577

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $25,000 a year is: | b. 0.48

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | c. 35%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 64, x = 3, p = 0.04 | c. 0.221

Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in Vietnam revealed the following endowments (in millions of dollars) 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. What value will be used as the point estimate for the mean endowment of all private colleges in Vietnam? | a. $180.975

The number of 113 calls in Hanoi, has a Poisson distribution with a mean of 10 calls a day. The probability of seven 113 calls in a day is | b. 0.09

Find the normal-curve area between z = -2 and z = -1. | c. 0.1359

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | a. 0.8805

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 24 and 28. | c. 0.2295

A 99% confidence interval estimate can be interpreted to mean that | a. Both of the above.

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency Number of respondents Never 1020 Less than once a year 302 Once a year 571 Several times a year 502 Once a month 308 Two-three times a month 380 Nearly every week 240 Every week 839 More than once a week 329 What is the probability that a randomly selected respondent attended religious services more than once a year? | a. 0.58

Find z if the normal curve area between 0 and z is 0.4756. | d. 1.9703

The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Hours 5 10 4 6 10 9 Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 3/17 5/17 6/17 2/17 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart | a.

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

Which of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. 7/10

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Find the percentile for the data point. Data set: 51 36 48 75 75 75 49 data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? | c. 378

Find the mode and the median of the sample 18, 19, 16, 21, 18, 19, 24, 15, 19 | 19 and 19

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | 1/10

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.950

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.169

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

| 1.55

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical Saturday night is distributed according to the density function with . Find the probability that, on a typical Saturday night, you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

Let X be a random variable has the following uniform density function f(x) = 0.1 when 0< x < 10. What is the probability that the random variable X has a value greater than 5.3? | 0.47

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

Let X be a continuous random variable with probability density function defined by Find the mean of X | 1/2

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

| 2.46

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

Suppose that X has a discrete uniform distribution on the integers 20 to 79. Which of the followings are true? (i) P(X > 41) = 13/20 (ii) E(10X)= 495 | Both (i) and (ii)

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour between 6:00 and 7:00 p.m. is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the probability that the number favoring the substation is more than 12? | 0.6482

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.25 to 12.25 gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

The number of customers that arrive at a fast-food business during a one-hour period is known to be Poisson distributed with a mean equal to 8.60. What is the probability that exactly 8 customers will arrive in a one-hour period? | 0.1366

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

Solve the problem. At the National Criminologists Association's annual convention, participants filled out a questionnaire asking what they thought was the most important cause for criminal behavior. The tally was as follows. Make a Pareto chart to display these findings. |

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Use the given paired data to construct a scatterplot. x -6 7 7 7 5 6 2 -1 -6 y 2 7 11 8 9 11 6 3 2 |

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 26 minutes and a standard deviation of 3 minutes. A random sample of 30 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows. 0 2 3 4 2 3 4 6 7 2 3 4 6 9 8 Construct the dot plot for the given data. |

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

Use the data to create a stemplot. The following data show the number of laps run by each participant in a marathon. 46 65 55 43 51 48 57 30 43 49 32 56 |

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. 11 15 23 29 19 22 21 20 15 25 17 What is the value of IQR? | 8

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart |

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Use the given paired data to construct a scatterplot. x 1 -3 -3 -2 3 5 -1 8 -4 -1 y -4 -6 -7 2 3 3 -6 3 -3 -3 |

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf 15 235 16 889 17 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. 32 37 41 44 46 48 53 55 56 57 59 63 65 66 68 69 70 71 74 74 75 77 78 79 80 82 83 86 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)

Let denote the sample mean of a random sample of size n1 = 16 taken from a normal distribution N(212, 36), and let denote the sample mean of a random sample of size n2 = 25 taken from a different normal distribution N(212, 9). Compute | 0.001

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

A store manager counts the number of customers who make a purchase in his store each day. The data are as follows. 10 11 8 14 7 10 10 11 8 7 Construct the dot plot for the given data. |

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

Use the data to create a stemplot. The attendance counts for this season's basketball games are listed below. 227 239 215 219 221 233 229 233 235 228 245 231 |

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

Use the given paired data to construct a scatterplot. x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32 y 0.44 0.56 -0.04 0.52 -0.68 0.9 0.88 0.19 |

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution. Excellent: 160, Good: 400, Fair: 240 Construct a pie chart representing the given data set. |

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

Use the data to create a stemplot. The midterm test scores for the seventh-period typing class are listed below. 85 77 93 91 74 65 68 97 88 59 74 83 85 72 63 79 |

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Let denote the sample mean of a random sample of size n1 = 16 taken from a normal distribution N(125, 36), and let denote the sample mean of a random sample of size n2 = 25 taken from a different normal distribution N(125, 9). The distribution of is | normal with mean 0 and standard deviation 1.6155

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Construct the cumulative frequency distribution that coressponds to the given frequency distribution |

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A manufacturer records the number of errors each work station makes during the week. The data are as follows. 6 3 2 3 5 2 0 2 5 4 2 0 1 Construct the dot plot for the given data. |

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: 60 61 62 63 64 65 66 68 68 69 70 73 73 74 75 76 76 81 81 82 86 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is between 0.40 and 0.46. Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 49, σ = 12.3, s = 8.72and the original population is not normally distributed. | Yes, test statistic =

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x 15 21 16 30 y 67 80 85 78 | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y 30 40 90 100 Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

Assume that you are predicting X from Y. Which of the following correlation coefficients would yield predictions with the most error? | d. r = 0.14

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 100 90 What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

Find the value of the linear correlation coefficient r. x 85.3 78.3 80.6 95.8 y 12.2 15.1 19.4 17.4 | a. 0.07

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are shown below. Test 1 7.5 6.4 6.6 5.8 8.3 Test 2 6.7 6.6 7.2 4.0 6.7 Find the value of the linear correlation coefficient r. | e. 0.58

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are shown below. Test 1 7.5 6.4 6.6 5.8 8.3 Test 2 6.7 6.6 7.2 4.0 6.7 Find the value of the linear correlation coefficient r. | d. 0.58

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

Assume that you are predicting X from Y. Which of the following correlation coefficients would yield predictions with the most error? | c. r = 0.14

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 120 90 What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | Observation study

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | 2, 4, 6, 8, 10

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | 0.117

Pick a bit string from the set of all bit strings of length 10. Find the probability of getting a bit string that begins and ends with 0. | 1/4

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | 0.22

A pair of dice is thrown twice. What is the probability of getting totals of 7 and 11? | 1/54

Given events E and F with probabilities P(E) = 0.65 and P(F) = 0.19, are E and F mutually exclusive? | cannot be determined

Which of the following is a discrete random variable? | The number of eggs that hens lay in a month

Suppose that 11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1139

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | 1.67

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | 45.7

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.19. (ii) The probability of the event that the code has at least 7 letters is 0.5 | (i) only

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | 0.1210

In a manufacturing process that laminates several ceramic layers, 2% of the assemblies are defective. Assume that the assemblies are independent. What is the mean number of assemblies that need to be checked to obtain five defective assemblies? | 250

Printed circuit cards are placed in a functional test after being populated with semiconductor chips. A lot contains 40 cards, and a sample of 3 are selected at random without replacement for functional testing. If 5 cards are defective, what is the probability that all cards in the sample are defective? | 0.001

(See picture) [file:1968.jpg] | (i)

(See picture) [file:1979.jpg] | 0.61

(See picture) [file:1986.jpg] | 8

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

A multiple-choice quiz has 20 questions each with 4 possible answers of which only 1 is the correct answer. What is the probability that sheer guesswork yields 4 correct answers for 5 of the 20 problems about which the student has no knowledge? | 0.0146

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | 0.082085

Suppose that a qualitative variable has three categories with frequencies of occurrence shown in the table. When constructing a pie chart, what is the size of the angle for class A? [file:3558.jpg] | (ii)

[file:3579.jpg] | 598, 600, 602, 604, 605

The heights (in inches) of 20 adult males are listed below. 70 72 71 70 69 73 69 68 70 71 67 71 70 74 69 68 71 71 71 72 Find the range of the data set. | 7

The standard error of the population proportion will become larger | as population proportion approaches 0.50.

A random sample of size n = 16 is taken from a normal population with mean 40 and variance 5. The distribution of the sample mean is | normal with mean 40 and variance 5/16.

A normal population has mean 76 and variance 9. How large must be the random sample be if we want the standard error of the sample mean to be 1.1? | 8

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. [file:2187.jpg] | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. [file:2195.jpg] | (189.5, 194.5)

(See picture) [file:2212.jpg] | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. [file:2225.jpg] | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? [file:2235.jpg] | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? [file:2232.jpg] | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

[file:3641.jpg] | (ii)

(See picture) [file:2252.jpg] | Reject the null hypothesis

[file:3649.jpg] | (ii)

(See picture) [file:2255.jpg] | to = -1.98, fail to reject Ho

(See picture) [file:2259.jpg] | 29.07

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:2271.jpg] | (iv)

(See picture) [file:3700.jpg] | 3.000

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Which statement is true? | Probability models quantify the risks involved in decisions made every day

How many baseball teams of nine members can be chosen from among twelve boys, without regard to the position played by each member? | 220

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | 0.172

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

For each of the following pairs of events, which are subsets of the set of all possible outcomes when a coin is tossed three times, choose the pair(s) is (are) independent. | All of the others

An electronic scale that displays weights to the nearest pound is used to weigh packages. The display shows only three digits. Any weight greater than the display can indicate is shown as 999. The random variable X is the displayed weight. What is the number of member in the sample space of X? | 1,000

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 2.5

Suppose that X has a discrete uniform distribution on the integers 1 to 15. Find 3V(X). | 56

Assume that a procedure yields a binomial distribution with a trial repeated n = 4 times. Use the binomial probability formula to find the probability of x=3 successes given the probability p=1/6 of success on a single trial. | 0.0154

In a certain manufacturing process it is known that, on the average, 1 in every 100 items is defective. What is the probability that the fifth item inspected is the first defective item found. | 0.0096

A naturalist leads whale watch trips every morning in March. The number of whales seen has a Poisson distribution with a mean of 4.3. Find the probability that on a randomly selected trip, the number of whales seen is 3. | 0.1798

The probability density function of the time required to complete an assembly operation is f(x)= 0.1 for 20≤ x ≤ 30 seconds. Determine the proportion of assemblies that requires more than 25 seconds to complete. | 0.50

(See picture) [file:1983.jpg] | 0.135

(See picture) [file:1989.jpg] | 5.76

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | 0.0668

(See picture) [file:2084.jpg] | (i)

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.367879

(See picture) [file:2112.jpg] | (iv)

Find the sample standard deviation. 15 42 53 | 19.6

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed... | if the shape of the population is normally distributed.

(See picture) [file:2162.jpg] | 0.4562

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.8767

(See picture) [file:2185.jpg] | 97

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. [file:2188.jpg] | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. [file:2201.jpg] | (3.41, 5.99)

In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. Construct a 90% confidence interval for the population mean. Assume the population has a normal distribution. [file:2209.jpg] | (17.47, 21.73)

Construct a 90% confidence interval for the population mean. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. Let t0.05,14 = 1.76, z0.05 = 1.645 | (2.51, 3.21)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. [file:2222.jpg] | 217

A bearing used in an automotive application is supposed to have a norminal inside diameter of 1.5 inches. A random sample of 36 bearing is selected and the average inside diameter of these bear-ing is 1.4895 inches. Bearing diameter is known to be normally distributed with standard deviation o = 0.02 inch. Test the hypotheses H0 : u = 1.5 versus H1 : u != 1.5 using alpha = 0.01 Let z0.01 = 2.326 , z0.005 = 2.576 | Reject the null hypothesis

(See picture) [file:2228.jpg] | 0.59 ± 0.068

(See picture) [file:2245.jpg] | (iii)

(See picture) [file:2247.jpg] | 0.0027

Bon Air Elementary School has 300 students. The principal of the school thinks that the average IQ of students at Bon Air is at least 110. To prove her point, she administers an IQ test to 20 randomly selected students. Among the sampled students, the average IQ is 108 with a standard deviation of 10. What is the value of the test statistic? Assume the IQ of students is normally distributed. | -0.894

A regression between foot length (dependent variable in cm) and height (independent variable in inches) for 33 students resulted in the following regression equation: y^ = 25.6 + 0.03x One student in the sample was 73 inches tall with a foot length of 29 cm. What is the residual for this student? | 1.21

(See picture) [file:2258.jpg] | 9.209

[file:3656.jpg] | 16.875

(See picture) [file:2264.jpg] | (iii)

(See picture) [file:2268.jpg] | (i)

The residuals represent | the difference between the actual Y values and the predicted Y values.

(See picture) [file:3698.jpg] | 2.552

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. [file:2287.jpg] | 0.98

(See picture) [file:3690.jpg] | 0.948

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | Number of items - discrete; total time - continuous

What is a method of collecting data? | A retrospective study using historical data

The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 250 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watches television. Identify the type of data collected by PAWT. | quantitative and discrete

Flip a coin twice, create the sample space of possible outcomes. (Below, H stands for Head, T stands for Tail) | HH HT TH TT

A single six-sided die is rolled. Find the probability of rolling a number less than 3. | 0.333

According to the U.S. census, in 2005, 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.279

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.19

(See picture) [file:1867.jpg] | disjoint but not independent.

A batch of 50 machined parts contains 5 that do not conform to customer requirements. Determine the range of the random variable that is number of parts that do not conform to customer requirements in a sample of 8 parts selected without replacement from the batch. | {0, 1, …, 8}

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.343

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | 15.6

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | 1.55

Let the random variable X have a discrete uniform distribution on the interval [1, 35]. Determine the mean and variance of X. | 18 and 102

Find the mean for the binomial distribution which has the stated values of n=20 and p=0.6. Round answer to the nearest tenth. | 12.0

The probability of a successful optical alignment in the assembly of an optical data storage product is 0.8. Assume the trials are independent. What is the probability that the first successful alignment requires exactly four trials? | 0.0064

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 1.52

(See picture) [file:1973.jpg] | 1.25

(See picture) [file:1982.jpg] | 0

Let X be a continuous random with f(x) is probability density function. Which the following statement(s) is (are) TRUE? | All of them

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

Assume that X has a normal distribution with the mean is µ= 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1 | 0.1587

(See picture) [file:2084.jpg] | (i)

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.254811

Find the mode for the sample composed of the observations 4, 5, 6, 6, 6, 7, 7, 8, 8, 5. | 6

(See picture) [file:2112.jpg] | (iv)

Which of the following is an acceptable format for setting up class boundaries for a frequency distribution? | All of the other choices is correct

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

The heights of people in a certain population are normally distributed with a mean of 64 inches and a standard deviation of 3.1 inches. Determine the sampling distribution of the mean for samples of size 39. | Normal, mean = 64 inches, standard deviation = 0.5 inches

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed... | regardless of the shape of the population.

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. [file:2194.jpg] | (21.1, 23.7)

(4335) (11081) [file:2182.jpg] | [765, 795]

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. [file:2211.jpg] | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). [file:2224.jpg] | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? [file:2241.jpg] | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

(See picture) [file:2246.jpg] | (iv)

(See picture) [file:2253.jpg] | Test statistic z = -8.43. There is sufficient evidence to warrant rejection of the claim that the population mean temperature is 22 degree C.

[file:3646.jpg] | (ii)

(See picture) [file:2258.jpg] | 9.209

(See picture) [file:2257.jpg] | 14.573, 43.194

(See picture) [file:2262.jpg] | (i)

(See picture) [file:2266.jpg] | -46.15

(See picture) [file:3694.jpg] | -0.93

(See picture) [file:2279.jpg] | 4.098

(See picture) [file:2286.jpg] | 0.894

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A random sample of 40 students has a mean annual earnings of 3120 and a population standard deviation of 677. Construct the confidence interval for the population mean. Use a 95% confidence level. | (2910, 3330)

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Assume that bowler’s scores are normally distributed. Find the 95% confidence interval of the mean score of all bowlers. | (189.5, 194.5)

(See picture) | (186.3, 197.7)

Construct a 95% confidence interval for the population standard deviation of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (7.5, 16.2)

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 4%? | 1037

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | 1068

In hypothesis testing, the null hypothesis should contain the equality sign. | True

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | (17.5, 21.7)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. 3.60 4.50 2.80 6.30 2.60 5.20 6.75 4.25 8.00 3.00 A simple computation yields a sample mean of 4.7 and standard deviation of 1.8. Assume the incomes are normally distributed. Find the 95% confidence interval for the true mean. | (3.41, 5.99)

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proprtion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | 217

The height y and base diameter x of five trees of a certain variety produced the following data. Compute the correlation coefficient r. | 0.98

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | (21.1, 23.7)

The grade point averages for 10 randomly selected high school students are listed below, which implies a sample mean of 2.54 and a sample standard deviation of 1.11. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | (1.55, 3.53)

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, (sigma). | (2.2, 5.8)

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | 461

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A statistics instructor believes that fewer than 20% of Evergreen Valley College (EVC) students attended the opening night midnight showing of the latest Harry Potter movie. She surveys 84 of her students and finds that 11 of attended the midnight showing. The Type I error is believing that the percent of EVC students who attended is: | less than 20%, when in fact, it is at least 20%

Suppose a 95% confidence interval for µ turns out to be (1000, 2100). Give a definition of what it means to be 95% confident in an inference|In repeated sampling, 95% of the intervals constructed would contain the population mean.

For sample size 16, the sampling distribution of the sample mean will be approximately normally distributed...|if the shape of the population is normally distributed.

For sample size 1, the sampling distribution of the mean will be normally distributed | only if the population is normally distributed.

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed.|regardless of the shape of the population.

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent. The distribution of $$\overline{X} $$- $$\overline{Y}$$ is | b. normal with mean 0 and standard deviation 5/6.

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | a. 2.6

Survey responses of “ good, better, best”. which type of data is? | c. Ordinal

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 20; p = 3/5 | c. 12.0

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 16.1. | a. 0.1587

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean temperature is different from 45°F

A bag of colored candies contains 20 red, 25 yellow, and 35 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | b. {red, yellow, orange}

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | c. 0.036

The amount of pyridoxine (in grams) per multiple vitamin is normally distributed with $$\mu= 110$$ grams and $$\sigma = 25$$ grams. A sample of vitamins is to be selected. What is the probability that the sample mean will be less than 100 grams? Let $$P(Z<-2)=0.023;P(Z<-0.4)=0.421;P(Z<0.07)=0.529;P(Z<0.75)=0.673$$. | a. 0.023

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the expected number of wins for the player? | c. 2.31

Researchers are concerned that the weight of the average American school child is increasing implying, among other things, that children’s clothing should be manufactured and marketed in larger sizes. If $$X$$ is the weight of school children sampled in a nationwide study, then $$X$$ is an example of | d. a continuous random variable.

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the standard deviation of the number favoring the substation? | d. 1.55

Find the critical value or values of x2 based on the given information. H1: σ < 0.629 n = 19 α = 0.025 | b. 8.231

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. What is the probability that a randomly chosen widget produced by the company is defective? | d. 0.1175

The grade point averages for 10 randomly selected students are listed below. Construct a 90% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 | b. (0.81, 1.83)

For large numbers of degrees of freedom, the critical χ2 values can be approximated as follows: χ2 = (z + )2, where k is the number of degrees of freedom and z is the critical value. To find the lower critical value, the negative z-value is used, to find the upper critical value, the positive z-value is used. Use this approximation to estimate the critical value of χ2 in a right-tailed hypothesis test with n =125 and α = 0.01. | a. χ2 ≈ 162.833

Which statement is true for the scores of 1, 2, 3, 4, 5, 5, 7, 8, 9, and 10? | a. The mean is greater than the median.

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | c. parking times of the 130 students

The probability that a radish seed will germinate is 0.7. A gardener plants seeds in batches of 11. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | a. 1.52

The standard IQ test has a mean of 96 and a standard deviation of 14. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | d. 34

An archer is able to hit the bull's-eye 55% of the time. If she shoots 8 arrows, what is the probability that she gets exactly 4 bull's-eyes? Assume each shot is independent of the others. | a. 0.2627

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | a. 0.7557

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.09 0.26 Democrat 0.22 0.2 Other 0.11 0.12 What is the probability that a voter who favors stronger gun control laws is a Republican? | c. 0.214

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25,$$\overline{x} = 951,$$ s = 25. The sample data appear to come from a normally distributed population with σ = 28. | a. Normal

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | a. 0.89

Find the variance for the given probability distribution. x 0 1 2 3 4 P(x) 0.17 0.28 0.05 0.15 0.35 | d. 2.46

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 5.0 gallons and 6.0 gallons are pumped during a randomly selected minute. | d. 0.33

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $700 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $550. | d. 0.0013

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at least 40 times. | c. 0.1210

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ < 0.14 n = 23 α = 0.10 | a. 14.042

The probabilities that a customer entering a particular bookstore buys 0, 1, 2, 3, 4, or 5 books are 0.30, 0.20, 0.20, 0.15, 0.10, and 0.05 respectively. For the probability distribution above, find the variance. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. 0.095089

A psychologist claims that more than 75 percent of the population suffers from professional problems due to extreme shyness. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to support the claim that the true proportion is greater than 75 percent.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is even. List the sample points in E. | c. {2, 4, 6, 8, 10}

When conducting a t test for the correlation coefficient in a study with 16 individuals, the degrees of freedom will be | d. 14.

Suppose that $$X$$ is a negative binomial random variable with $$p = 0.2$$ and $$r = 4$$. Determine $$P(X=20)$$. | a. 0.0436

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. How many citizens would need to be sampled if a 95% confidence interval was desired to estimate the true proportion to within 5%? | a. 379

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2 and 12 minutes to park in the library lot. | d. 0.556744

A local bank needs information concerning the checking account balances of its customers. A random sample of 15 accounts was checked. The mean balance was $686.75 with a standard deviation of $256.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | d. ($513.17, $860.33)

A basketball player has made 70% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | b. 0.343

When considering area under the standard normal curve, decide whether the area to the left ofz =0.2is bigger than, smaller than, or equal to the area to the right ofz = -0.2 | c. equal to

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 11.5 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.5 gallons per minute? | a. 0.50

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | d. 98

If you were constructing a 99% confidence interval of the normal population mean based on a sample of $$n = 25$$ where the standard deviation of the sample $$s = 0.05$$. What is the critical value? Let $$t\_{0.005,24}=2.7969;t\_{0.01,24}=2.4922;z\_{0.01}=2.33; z\_{0.05}=2.58$$. | a. 2.7969

One year, professional sports players salaries averaged $1.5 million with a standard deviation of $0.7 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.1 million. | d. approximately 1

A random number generator is set top generate integer random numbers between 1 and 10 inclusive following a uniform distribution. What is the probability of the random number generator generating a 7? | c. 1/10

The probability is 0.7 that a person shopping at a certain store will spend less than $20. For random samples of 28 customers, find the mean number of shoppers who spend less than $20. | c. 19.6

According to a college survey, 22% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 16. | b. 1.66

Construct the cumulative frequency distribution that coressponds to the given frequency distribution | d.

A multiple choice test has 10 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? | a. 0.2503

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve to the right of 64. | d. 0.2525

In a sample of 10 randomly selected women, it was found that their mean height was 63.4 inches. From previous studies, it is assumed that the standard deviation, $$\sigma,$$ is 2.4. Construct the 95% confidence interval for the population mean. | b. (61.9, 64.9)

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | a. descriptive statistics.

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 90% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 6 ounces. | c. 7

Police estimate that 25% of drivers drive without their seat belts. If they stop 6 drivers at random, find the probability that all of them are wearing their seat belts. | a. 0.178

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | a. 0.4987

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 14 H1: μ < 14

A business venture can result in the following outcomes (with their corresponding chance of occurring in parentheses) Highly Successful (10%), Successful (25%), Break Even (25%), Disappointing (20%), and Highly Disappointing (?). If these are the only outcomes possible for the business venture, what is the chance that the business venture will be considered Highly Disappointing? | a. 20%

A researcher claims that 62% of voters favor gun control. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | gun control is 62% when it is actually different than 62%.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | d. all custormers

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $900 per month and a standard deviation of $50 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $775.00 and $990.00? | c. .9579

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | c. 31.74%

In a random sample of 60 computers, the mean repair cost was $150 with a population standard deviation of $36. Construct a 99% confidence interval for the population mean. | b. ($138, $162)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 19 randomly selected students has a mean age of 22.4 years with a standard deviation of 3.8 years. | d. (19.9, 24.9)

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 647 drowning deaths of children with 30% of them attributable to beaches. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$. | d. 2.94

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | c. 99.7%

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1050 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1100 kWh and 1225 kWh. | c. 0.1971

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following confidence interval: Using the information above, what size sample would be necessary if we wanted to estimate the true proportion to within 2% using 99% reliability? | c. 4118

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of the seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the standard deviation is less than 14.7.

Suppose x is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | b. 0.7

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, $$\sigma^2.$$ Assume the data are normally distributed | a. (3.2, 26.3)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the number of ounces above which 80% of the dispensed sodas will fall. | c. 8.6

Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: μ = 30 H1: μ > 30

Which of the following is not true about the standard normal distribution? | b. The area under the standard normal curve to the left of z = 0 is negative.

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that at least two become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | b. 0.04

The volumes of soda in quart soda bottles are normally distributed with a mean of 32.3 oz and a standard deviation of 1.2 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 32 oz? | d. 0.4013

Both Fred and Ed have a bag of candy containing a lemon drop, a cherry drop, and a lollipop. Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | b. LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Using Excel to find three quartiles for the given data below: 1, 3, 6, 10, 15, 21, 28, 36. | b. 5.25, 12.5, 22.75

If the probability of a newborn child being female is 0.5, find the probability that in 100 births, 55 or more will be female. | b. 0.1841

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n =12, x = 5, p = 0.25 | d. 0.103

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $3.60 $4.50 $2.80 $6.30 $2.60 $5.20 $6.75 $4.25 $8.00 $3.00 Find the 95% confidence interval for the true mean. | b. ($3.39, $6.01)

Suppose a 95% confidence interval for μ turns out to be (1000, 2100). Give a definition of what it means to be "95% confident" in an inference. | c. In repeated sampling, 95% of the intervals constructed would contain the population mean.

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean. 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | d. 16

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 1.43. | c. 0.0764

On a multiple choice test with 16 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | c. 1.732

The grade point averages for 10 randomly selected students in a statistics class with 125 students are listed below. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 What is the effect on the width of the confidence interval if the sample size is increased to 20? | b. The width decreases.

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 42.8 3 21.1 4 19.2 5 11.6 6 3.3 7+ 2.0 A family is selected at random. Find the probability that the size of the family is 4 or more. Round your result to three decimal places. | d. 0.361

Which of the following is true about the sampling distribution of the sample mean? | a. The mean of the sampling distribution is always μ.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 16 fluorescent light bulbs has a mean life of 645 hours with a standard deviation of 31 hours. | c. (628.5, 661.5)

Survey responses of nationalities of survey respondents. which type of data is? | a. Nomial

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | d. 84.00%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 4, x = 3, p = 1/6 | a. 0.0154

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -1.83. | c. 0.0336

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | d. 1.23

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x 1 2 3 4 5 6 P(x) 0.16 0.19 0.22 0.21 0.12 0.10 | c. 2.36

The owner of a football team claims that the average attendance at games is over 67,800, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: μ, the average attendance at games, is equal to 67,800 H1: μ, the average attendance at games, is greater than 67,800

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 50°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | c. The error of rejecting the claim that the mean temperature equals 50°F when it really does equal 50°F.

A campus program evenly enrolls undergraduate and graduate students. If a random sample of 4 students is selected from the program to be interviewed about the introduction of a new fast food outlet on the ground floor of the campus building, what is the probability that all 4 students selected are undergraduate students? | a. 0.0625

Flip a coin twice, create the sample space of possible outcomes. | a. HH HT TH TT

The number of power outages at a nuclear power plant has a Poisson distribution with a mean of 6 outages per year. The probability that there will be exactly 3 power outages in a year is | b. 0.0892

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | c. 1/6

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | d. 0.92

At one college, GPAs are normally distributed with a mean of 2.6 and a standard deviation of 0.4. What percentage of students at the college have a GPA between 2.2 and 3? | c. 68%

When is the correlation coefficient zero? | a. when there is no linear correlation

For sample sizes greater than 40, the sampling distribution of the mean will be approximately normally distributed | d. regardless of the shape of the population.

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 26.1 n = 9 α = 0.01 | c. 20.090

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution $$N(\mu, 3300^2).$$ Compute $$P(\overline{X}-\overline{Y} <-2500).$$ | b. 0.0314

Find the mean of thefollowing probability distribution. x 0 1 2 3 4 P(x) 0.19 0.37 0.16 0.26 0.02 | c. 1.55

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | c. bigger than

Find the percentile for the data point. data set: 3 11 8 6 3 3 11 6 3 11 2 11 15 4 9 3 12 8 6 11 data point: 6 | b. 35

Find the critical value or values of x2 based on the given information. H0: σ = 8.0 n = 10 α = 0.01 | d. 1.735, 23.589

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 19.6 with a standard deviation of 5.8 hours. | d. (17.47, 21.73)

Let X be a random variable has the following uniform density function f(x) = 0.1 when 0< x < 10. What is the probability that the random variable X has a value greater than 5.3? | b. 0.47

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | b. Retrospective study

If you were constructing a 99% confidence interval of the population mean based on a sample of n=25 where the standard deviation of the sample s = 0.05, the critical value of t will be | b. 2.7969.

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.2 millimeters? | d. 0.65

Suppose that $$X$$ has the probability density function $$f(x)=1.5x^2$$ for $$-1 Chọn một câu trả lời | d. 0.125

Two white mice mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black Create the sample space of possible outcomes. | b. WW, BW

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to warrant rejection of the claim that the mean weight is at least

Flip a coin three times, create the sample space of possible outcomes. | c. HHH HHT HTH HTT THH THT TTH TTT

Find the standard deviation for the given probability distribution. x 0 1 2 3 4 P(x) 0.37 0.05 0.13 0.25 0.20 | a. 1.60

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.2-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.6 ounces. | a. approximately 0

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 4.0 minutes and a standard deviation of 1 minute. Find the probability that a randomly selected college student will take between 2.5 and 5.0 minutes to find a parking spot in the library lot. | c. 0.7745

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | b. 221

A psychologist claims that more than 3 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 3 percent when it is actually more than 3 percent.

According to police sources a car with a certain protection system will be recovered 87% of the time. Find the probability that 4 of 7 stolen cars will be recovered. | a. 0.044

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | d. 0.3174.

An entomologist writes an article in a scientific journal which claims that fewer than 16 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. |

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | c. descriptive statistics.

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. Favor Oppose Republican 0.11 0.27 Democrat 0.25 0.16 Other 0.15 0.06 What is the probability that a Democrat opposes stronger gun control laws? | a. 0.390

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | d. 46 miles

We have created a 95% confidence interval for $$\mu$$ with the result (10, 15). What decision will we make if we test $$H\_0: \mu =16$$ versus $$H\_1: \mu eq 16$$ at $$\alpha= 0.05$$? | b. Reject $$H\_0$$ in favor of $$H\_1$$.

A researcher claims that 62% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.62 H1: p ≠ 0.62

In a binomial distribution with 10 trials, which of the following is true? | a. P(x > 7) = P(x ≥ 8)

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | c. 0.262

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(m, 33002). The distribution of the difference of the sample mean $$\overline{X}$$ - $$\overline{Y}.$$ | a. normal with mean 0 and standard deviation 1347.22

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a two-tailed test. | c. ±1.96

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | b. 0.57

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | b. 8.66

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student more than 10 minutes to park in the library lot. | d. 0.082085

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | a. 1/9

According to the Center for Disease Control, 41.5% of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | a. 0.12

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | b. equal to

Let $$X$$ be uniformly distributed over [0, 1]. Calculate $$E[X^3]$$. | b. 0.25

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 5 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | c. 68%

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | a. 0.526

The lengths of human pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. What is the probability that a pregnancy lasts at least 300 days? | d. 0.0166

The probability that a house in an urban area will be burglarized is 2%. If 29 houses are randomly selected, what is the probability that none of the houses will be burglarized? | a. 0.557

The diameters of pencils produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What is the probability that the diameter of a randomly selected pencil will be less than 0.285 inches? | d. 0.0668

Based on the scores 1, 9, 3, 6, 1, 2, 6, 2, 2, and 8, a score of 4 is the | a. mean.

Compute the critical value $$z\_{\alpha/2}$$ that corresponds to a 94% level of confidence. | b. 1.88

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | b. independent but not disjoint.

A test consists of 10 true/false questions. To pass the test a student must answer at least 7 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | a. 0.172

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) Frequency 35-39 1 40-44 3 45-49 5 50-54 11 55-59 7 60-64 7 65-69 1 | b. 53.4

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.5 to 13.5 gallons per minute. Find the variance of the distribution. | b. 1.33

Friskie is having her fifth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes. | c. NNR NNN

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household own 2 cars is: | b. 0.69

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $25,000 a year is: | c. 0.12

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 3.2 inches. Construct a 99% confidence interval for the population standard deviation, $$\sigma.$$ | d. (2.2, 5.8)

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | c. bigger than

Find the standard deviation for the binomial distribution which has the stated values of n and p. Round your answer to the nearest hundredth. n = 2661; p = 0.63 | d. 24.91

Survey responses of temperatures of the ocean at various depths. which type of data is? | a. Interval

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | c. 0.400

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | d. 89.6

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 1 centimeter and a standard deviation of 0.1 centimeter. A random sample of 12 computer chips is taken. What is the standard error for the sample mean? | a. 0.029

Find z if the normal curve area to the right of z is 0.8997. | c. -1.2798

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | a. 76.4

Assume that blood pressure readings are normally distributed with a mean of 124 and a standard deviation of 6.4. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 126. | c. 0.9938

The probability of winning a certain lottery is 1/51949. For people who play 560 times, find the standard deviation for the random variable X, the number of wins. | b. 0.1038

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 100 marbles that has a mean diameter greater than 0.851 cm? | b. 0.1587

Suppose that a number of miles that a car can run before its battery wears out is exponentially distributed with an average value of 10000 miles. If a person desires to take a 5000-mile trip, what is the probability that she will be able to complete her trip without having to replace her car battery? | c. 0.6

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major Frequency Engineering 868 English 2073 Mathematics 2164 Chemistry 318 Physics 856 Liberal Arts 1358 Business 1676 What is the probability that a randomly selected degree is not in Mathematics? | b. 0.768

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | c. 0.6826

LetZ is a standard normal variable, find the probability that Z lies between -1.10 and -0.36. | c. 0.2237

According to the 2003 National Survey on Drug Use and Health, 54.3% of males have never used marijuana. Based on this percentage, what is the expected number of males who have used marijuana for samples of size 100? | c. 45.7

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected, find the probability that from two to four become vice presidents. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.034

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that more than 16 ounces is dispensed in a cup. | c. 0.1587

Find the mean for the binomial distribution which has the stated values of n and p. Round answer to the nearest tenth. n = 33; p = 0.2 | b. 6.6

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 6. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18.6 lb. | a. 0.6730

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is 5 years or more. | d. 0.229790

At a California college, 22% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | d. 0.19

Assume that the heights of women are normally distributed. A random sample of 20 women have a mean height of 62.5 inches and a standard deviation of 2.5 inches. Construct a 98% confidence interval for the population variance, $$\sigma^2.$$ | c. (3.3, 15.6)

Construct the boxplot for the given data below: 3, 3, 5, 6, 4, 9, 8, 9, 6. | d.

A die is rolled 10 times and the number of times that two shows on the up face is counted. If this experiment is repeated many times, find the mean for the random variable X, the number of twos thrown out of ten tosses. | c. 1.67

Find the critical value or values of x2 based on the given information. H1: σ ≠ 9.3 n = 28 α = 0.05 | c. 14.573, 43.194

A population of Australian Koala bears has a mean height of 20 inches and a standard deviation of 4 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 20 and 21. | b. 0.4772

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the following table. X(girls) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 P(X) 0.000 0.001 0.006 0.022 0.061 0.122 0.183 0.209 0.183 0.122 0.061 0.022 0.006 0.001 0.000 Find the probability of selecting 9 or more girls. | c. 0.212

The random variableX represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the mean and standard deviation for the random variable X. | a. mean: 1.50; standard deviation: 0.87

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.45 ounces of soda. Every can that has more than 12.45 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | c. 0.1587

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,825 hours. | a. 0.1056

A psychologist claims that more than 6.3 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 6.3% H1: p > 6.3%

A major videocassette rental chain is considering opening a new store in an area that currently does not have any such stores. The chain will open if there is evidence that more than 25% households in the area are equipped with videocassette recorders (VCRs). It conducts a telephone poll of 300 randomly selected households in the area and finds that 96 have VCRs. The value of the test statistic in this problem is approximately equal to | c. 2.80

Which of the following is a discrete quantitative variable? | d. The number of employees of an insurance company

Suppose that the probability that a particular brand of light bulb fails before 900 hours of use is 0.2. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 900 hours or more? | b. 0.992

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 49, σ = 12.3, and the original population is not normally distributed. | a. Yes

Which of the following is a continuous quantitative variable? | d. The amount of milk produced by a cow in one 24-hour period

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, $$\overline{x} = 101,$$ s = 15.3. The sample data appear to come from a population with a distribution that is very far from normal, and σ is unknown. | b. Neither

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.10. | a. 37.3

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at least one head? | a. 7/8

The owner of a football team claims that the average attendance at games is over 60,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | most 60,000, when it is actually greater than 60,000.

On a 10-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | a. 2.5

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 50 individuals resulted in an average income of $15000. What is the width of the 90% confidence interval? | d. $465.23

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a right-tailed test. | b. +1.34

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | c. i) and iv)

An entomologist writes an article in a scientific journal which claims that fewer than 11 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: p = 0.0011 H1: p < 0.0011

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | d. 0.59 ± 0.068

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | a. number of items - discrete; total time - continuous

An airline reports that it has been experiencing a 15% rate of no-shows on advanced reservations. Among 150 advanced reservations, find the probability that there will be fewer than 20 no-shows. | c. 0.251

The name of each contestant is written on a separate card, the cards are placed in a bag, and three names are picked from the bag. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | c. Random

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. |

A random sample of 40 students has a mean annual earnings of $3120 and a population standard deviation of $677. Construct the confidence interval for the population mean, μ. Use a 95% confidence level. | c. ($2910, $3330)

An economist is interested in studying the incomes of consumers in a particular region. The normally population standard deviation is known to be $1000. What total sample size would the economist need to use for a 95% confidence interval if the width of the interval should not be more than $100? Let $$z\_{0.025}=1.96; z\_{0.05}=1.65$$. | a. n = 1537

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.4 years. Find the probability that the time until the first critical-part failure is less than 1 year. | a. 0.254811

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.7 hours. | c. 0.1469

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | c. 0.8

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 90\% confidence interval to estimate the true proportion of students who receive financial aid. Let $$z\_{0.1}=1.28;z\_{0.05}=1.65$$. | c. (0.533; 0.647)

To determine the mean of a binomial distribution, it is necessary to know the number of successes involved in the problem. | a. False

Which of the following is always true for a normal distribution? | b. P(2< x ≤ 8) = P(2 ≤ x < 8)

Find the normal-curve area between z = -1.48 and z = 0. | d. 0.4306

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that at least one chocolate bar was eaten. | a. 5/9

A study of 1000 randomly selected flights of a major airline showed that 782 of the flights arrived on time. What is the probability of a flight arriving on time? | a. 391/500

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | c. 1.96%

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation? | c. 12

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 1900 miles. What is the probability a certain tire of this brand will last between 56,010 miles and 56,580 miles? | b. 0.0180

According to a 2007 report published by the National Center on Addiction and Substance Abuse at Columbia University, 59% of teens have family dinners five or more times a week, 13% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.64. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | b. 0.08

A percentage distribution is given below for the size of families in one U.S. city. Size Percentage 2 45.1 3 22.2 4 19.7 5 8.0 6 3.1 7+ 1.9 A family is selected at random. Find the probability that the size of the family is less than 6. Round your result to three decimal places. | c. 0.950

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | b. H0: σ = 14.7 H1: σ < 14.7

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | b. binomial distribution.

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | d. {0, 1, 2}

The use of the Poisson distribution requires a value n which indicates a definite number of independent trials. | a. False

The process of using sample statistics to draw conclusions about true population parameters is called | d. statistical inference.

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 65% with a standard deviation of 7.1. Assuming that the distribution is normal, what percentage of states had between 50 and 70 percent of it's voting-age population who were registered to vote? | a. 0.74

A stock analyst compares the relationship between stock prices and earnings per share to help him select a stock for investment. What type of the description is? | c. Observation study

According to a college survey, 22% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 16. | d. 3.52

The following table contains the probability distribution for X = the number of traffic accidents reported in a day in Hanoi. X 0 1 2 3 4 5 P(X) 0.10 0.20 0.45 0.15 0.05 0.05 The probability of more than 2 accidents is | d. 0.25

A Type II error is committed when | c. we don't reject a null hypothesis that is false.

Use the given information to find the P-value. The test statistic in a right-tailed test is z = 0.52. | b. 0.3015

| d.

According to the Center for Disease Control, in 2004, 65.7% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if two randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | d. 0.88

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | c. 0.37 ± .053

Which of the following is not true of statistics? | c. Statistics is used to answer questions with 100% certainty.

A group of 40 bowlers showed that their average score was 192 with a population standard deviation of 8. Find the 95% confidence interval of the mean score of all bowlers. | a. (189.5, 194.5)

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12 ounces and a standard deviation of 4 ounces. Find the probability that between 15 and 18 ounces are dispensed in a cup. | c. 0.1598

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | c. 0.625

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.08 using 95% confidence? | a. 150

The area to the right of z = 1.0 is equal to | a. 0.1587.

Use the given information to find the P-value. The test statistic in a left-tailed test is z = -2.05. | b. 0.0202

Suppose that11% of people are left handed. If 6 people are selected at random, what is the probability that exactly 2 of them are left handed? | c. 0.1139

A survey of senior citizens at a doctor's office shows that 52% take blood pressure-lowering medication, 43% take cholesterol-lowering medication, and 5% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | d. 0.90

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

Assume that the heights of men are normally distributed. A random sample of 16 men have a mean height of 67.5 inches and a standard deviation of 2.2 inches. Construct a 99% confidence interval for the population standard deviation. Let $$\chi\_{0.005,15}^2=32.8;\chi\_{0.995,15}^2=4.6$$. | a. (1.5, 4.0)

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | b. 0.8708

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 114.8 and a standard deviation of 13.1. If 23 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | d. 0.0577

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $25,000 a year is: | b. 0.48

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | c. 35%

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. n = 64, x = 3, p = 0.04 | c. 0.221

Private colleges and universities rely on money contributed by individuals and corporations for their operating expenses. Much of this money is put into a fund called an endowment, and the college spends only the interest earned by the fund. A recent survey of 8 private colleges in Vietnam revealed the following endowments (in millions of dollars) 60.2, 47.0, 235.1, 490.0, 122.6, 177.5, 95.4, and 220.0. What value will be used as the point estimate for the mean endowment of all private colleges in Vietnam? | a. $180.975

The number of 113 calls in Hanoi, has a Poisson distribution with a mean of 10 calls a day. The probability of seven 113 calls in a day is | b. 0.09

Find the normal-curve area between z = -2 and z = -1. | c. 0.1359

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | a. 0.8805

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 24 and 28. | c. 0.2295

A 99% confidence interval estimate can be interpreted to mean that | a. Both of the above.

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency Number of respondents Never 1020 Less than once a year 302 Once a year 571 Several times a year 502 Once a month 308 Two-three times a month 380 Nearly every week 240 Every week 839 More than once a week 329 What is the probability that a randomly selected respondent attended religious services more than once a year? | a. 0.58

Find z if the normal curve area between 0 and z is 0.4756. | d. 1.9703

The paired data below consist of the test scores of 6 randomly selected students and the number of hours they studied for the test. Hours 5 10 4 6 10 9 Score 4 8 3 6 9 8 $$ Find the value of the linear correlation coefficient $$r$$. | d. 0.973

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | c. 6.9 minutes

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 25 randomly selected students has a mean test score of 81.5 with a standard deviation of 10.2. | c. (77.29, 85.71)

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 15 minutes? | d. 0.9765

A student randomly selects 10 CDs at a store. The mean is $8.75 with a standard deviation of $1.50. Construct a 95% confidence interval for the population standard deviation, $$\sigma.$$ Assume the data are normally distributed. | a. ($1.03, $2.74)

If $$n = 10$$ and $$p = 0.70$$, then the standard deviation of the binomial distribution is | d. 1.45

A telemarketer found that there was a 1% chance of a sale from his phone solicitations. Find the probability of getting 5 or more sales for 1000 telephone calls. | b. 0.9599

Which of the following cannot be a probability? | c. 4/3

Find the variance of the given data. Round your answer to one more decimals than the original data. | a. 3.96

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3377.2 and a standard deviation of 847.4. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 2360 and 4055? | a. 0.67

According to the U.S. census, in 2005 21% of homicide victims were known to be female, 9.7% were known to be under the age of 18 and 2.8% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | d. 0.279

The random variableX represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 3/17 5/17 6/17 2/17 1/17 | c. mean: 1.59; standard deviation: 1.09

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | c. 0.5000

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | b. 0.511

Assume that the weights of quarters are normally distributed with a mean of 5.67 g and a standard deviation 0.070 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | b. 1.96%

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? | d. 95%

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7 minutes? | c. 0.917915

Suppose X is a uniform random variable over [10, 70]. Find the probability that a randomly selected observation is between 13 and 65. | c. 0.87

Construct a 98% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 14 bowlers showed that their average score was 192 with a standard deviation of 8. | c. (186.3, 197.7)

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 6.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.75 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | c. 0.25

An article in Concrete Research presented data on compressive strength $$x$$ and intrinsic permeability $$y$$ of various concrete mixes and cures. Summary quantities are $$n = 14,\sum y\_i=572,\sum y\_i^2=23,\sum x\_i=43, \sum x\_i^2=157.42$$, and $$\sum x\_i y\_i=1697.8$$. Assume that the two variables are related according to the simple linear regression model. Calculate the least squares estimates of the slope. | a. -2.33

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 1.5 minutes will hang up before placing an order? | b. 0.60653

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | d. 0.7, if A and B are independent.

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 15 randomly selected students has a grade point average of 2.86 with a standard deviation of 0.78. | d. (2.51, 3.21)

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.1 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | d. 0.0021

A random sample of 56 fluorescent light bulbs has a mean life of 645 hours with a population standard deviation of 31 hours. Construct a 95% confidence interval for the population mean. | b. (636.9, 653.1)

A recent survey of banks revealed the following distribution for the interest rate being charged on a home loan (based on a 30-year mortgage with a 10% down payment). Interest rate 7.0\% 7.5\% 8.0\% 8.5\% 9.0\% Probability 0.12 0.23 0.24 0.35 0.06 $$ If a bank is selected at random from this distribution, what is the chance that the interest rate charged on a home loan will exceed 8.0%? | b. 0.41

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 99% confident that the margin of error is within 3%? | d. 1842

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart | a.

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most three boys in ten births. | c. 0.172

A salesperson knows that 20% of his presentations result in sales. Find the probabilities that in the next 60 presentations between 14 and 18, inclusive, result in sales. (Note: please give the answer as a real number accurate to 4 decimal places after the decimal point.) | b. 0.98

When considering area under the standard normal curve, decide whether the area between z = -0.2 and z = 0.2 is bigger than, smaller than, or equal to the area between z = -0.3 and z = 0.3. | a. smaller than

An entomologist writes an article in a scientific journal which claims that fewer than 19 in ten thousand male fireflies are unable to produce light due to a genetic mutation. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | d. There is sufficient evidence to support the claim that the true proportion is less than 19 in ten thousand.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 4%? A previous study indicates that the proportion of left-handed golfers is 10%. | b. 217

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | a. 0.465

Six pairs of data yield $$r = 0.444$$ and the regression equation $$\hat y= 5x+2.$$ Also, $$\overline{y}=18.3$$. What is the best predicted value of $$y$$ for $$x=5$$? | b. 18.3

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5 and 7 percent? | b. 0.39

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month without a breakdown. (Note: please give the answer as a real number accurate to 3 decimal places after the decimal point.) | a. 1.6

Fifty percent of the people that get mail-order catalogs order something. Find the probability that only three of 10 people getting these catalogs will order something. | a. 0.117

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 99% confident that the sample proportion will not differ from the true proportion by more than 6%? | d. 461

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 40? | c. 0.2

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 15, $$\overline{x} = 103,$$ s = 15.2. The sample data appear to come from a normally distributed population with unknown μ and | c. Student t

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.1 for a two-tailed test. | c. ±1.645

If either event A or event B must occur, then events A and B are said to be | b. None of the others.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a standard deviation of 0.78. Construct the confidence interval for the population mean, $$\mu,$$ if $$\alpha = 0.02$$. Let $$z\_{0.01}=2.33;z\_{0.02}=2.05;t\_{0.01,149}=2.35;t\_{0.02,149}=2.07$$. | b. (2.71, 3.01)

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1158 subjects with 30% saying that they play a sport. Find the value of the test statistic z using $$z=\frac{\overline{p}-p\_0}{\sqrt{\frac{p\_0(1-p\_0)}{n}}}$$ | c. -13.61

If a psychologist observed that four 5-year-old children initiated 2, 4, 6, and 12 incidents of aggression during a play period, the mean number of aggressive incidents for this group of four children was | c. 6

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | b. 39.3

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | d. 0.5625 ±0 .0129

The following table contains the probability distribution for X = the number of retransmissions necessary to successfully transmit a 1024K data package through a double satellite media. X 0 1 2 3 P(X) 0.35 0.35 0.25 0.05 $$ The variance for the number of retransmissions is | b. 0.8

Find z if the normal curve area to the left of z is 0.1611. | c. -0.99

Find the standard normal-curve area to the left of z = -0.54. | b. 0.2946

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x 0 1 2 3 4 P(x) 0.30 0.40 0.20 0.06 0.04 | a. mean: 1.14; standard deviation: 1.04

Which of the following is not an element of descriptive statistical problems? | c. An inference made about the population based on the sample.

The probability that a person has immunity to a particular disease is 0.6. Find the mean for the random variable X, the number who have immunity in samples of size 26. | d. 15.6

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x(minutes) f 0.5-1.5 15 1.5-2.5 20 2.5-3.5 15 3.5-4.5 20 4.5-5.5 30 | b. 3.3 and 1.4599

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends less than 48 minutes in the supermarket. | c. 0.6915

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 20 college students had mean annual earnings of $3120 with a standard deviation of $677. | d. ($2803, $3437)

The mean replacement time for a random sample of 12 microwave ovens is 8.6 years with a standard deviation of 2.3 years. Construct the 98% confidence interval for the population variance. Assume the data are normally distributed. Let $$\chi^2\_{0.01,11}=24.72;\chi^2\_{0.99,11}=3.05$$. | a. (2.4, 19.1)

49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classed with 496, 348, and 481 students respectively. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | b. Stratified

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 2 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | c. H0: p = 0.002 H1: p < 0.002

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 40 to 80. What is the probability that this experiment results in an outcome less than 50? | b. 0.25

Suppose a 95% confidence interval for population mean turns out to be (1000, 2100). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | b. Both increase the sample size and decrease the confidence level.

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean is between 45 and 52 minutes? | c. 0.4947

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 3%? A previous study indicates that the proportion of households with two cars is 24%. | d. 1101

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.2 pounds and standard deviation of 0.8 pound. If a sample of 64 fish yields a mean of 3.4 pounds, what is probability of obtaining a sample mean this large or larger? | d. 0.0228

A researcher claims that 62% of voters favor gun control. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | b. There is not sufficient evidence to warrant rejection of the claim that 62% of voters favor gun control.

Find the standard normal-curve area between z = -1.3 and z = -0.4. | a. 0.2478

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 360 hours and a standard deviation of 8 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | d. 95%

In its standardized form, the normal distribution | b. be used to approximate discrete probability distributions.

A random sample of 150 students has a grade point average with a mean of 2.86 and with a population standard deviation of 0.78. Construct the confidence interval for the population mean, μ. Use a 98% confidence level. | d. (2.71, 3.01)

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 12,246 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 12,246 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an extra stiff shaft. | b. 0.219

Compute the standardized test statistic, $$\chi^2$$, to test the claim $$\sigma^2= 34.4$$ if $$n = 12, s =28.8$$, and $$\alpha=0.05$$. | b. 265.23

Two different tests are designed to measure employee productivity and dexterity. Several employees are randomly selected and tested with these results. Productivity,x 3 5 8 2 1 Dexterity,y 9 3 9 4 7$$ Find the equation of the regression line. | b. $$\hat y = 5.49+0.24x$$

A survey of the 9225 vehicles on the campus of State University yielded the following circle graph Find the number of hatchbacks. Round the result to the nearest whole number . | a. 2860

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | c. 2.41%

A committee of three people is to be formed. The three people will be selected from a list of five possible committee members. A simple random sample of three people is taken, without replacement, from the group of five people. Using the letters A, B, C, D, E to represent the five people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 10 possible samples.) | e.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that annual household income is over $25,000 if the residents of a household do not own 2 cars is: | a. 0.40

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $490 and a standard deviation of $45. What is the probability that a randomly selected elementary school teacher earns more than $525 a week? | b. 0.2177

Find the mode(s) for the given data | a. 6.8 and 6.5

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the standard deviation is different from 3.3 mg

The number of golf balls ordered by customers of a pro shop has the following probability distribution. x 3 6 9 12 15 P(x) 0.14 0.11 0.36 0.29 0.10 Find the mean of thethis probability distribution. | b. 9.3

The number of monthly breakdowns of a conveyor belt at a local factory is a random variable having the Poisson distribution with λ = 2.8. Find the probability that the conveyor belt will function for a month with one breakdown. (Note: please give the answer as a real number accurate to2 decimal places after the decimal point.) | b. There is not sufficient evidence to support the claim that the true proportion is less than 3 in ten thousand.

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: Compute the range of data. | a. 14

In 2006, the General Social Survey asked subjects whether they favored or opposed the death penalty for persons convicted of murder and whether they favored or opposed a law requiring a person to obtain a permit before he or she could buy a gun. According to the survey results, 79.6% of respondents favored the gun law, 67.8% favored the death penalty for those convicted of murder and 52.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | c. 0.947

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,800 and $151,200 if the standard deviation is $1200. | d. 68%

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 70. What is the mean outcome of this experiment? | c. 60

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | 3.3 mg when it is actually different from 3.3 mg.

A group of volunteers for a clinical trial consists of 81 women and 77 men. 18 of the women and 19 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | d. 0.222

Construct a 95% confidence interval for the population standard deviation $$\sigma$$ of a random sample of 15 men who have a mean weight of 165.2 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | a. (7.5, 16.2)

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.05 for a left-tailed test. | b. -1.645

Which of the following is always true? | a. If A and B are disjoint, then they cannot be independent.

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. | d.

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | d. 55.8

The editor of a particular women's magazine claims that the magazine is read by 60% of the female students on a college campus. Find the probability that in a random sample of 10 female students more than two read the magazine. (Note: please give the answer as a real number accurate to4 decimal places after the decimal point.) | c. 0.0512

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | d. 0.8732

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | b. Observation study

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 25,σ = 5.93, and the original population is normally distributed. | b. Yes

Carter Motor Company claims that its new sedan, the Libra, will average better than 23 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | gallon when it really is at most 23 miles per gallon.

A group of students were asked if they carry a credit card. The responses are listed in the table. If a student is selected at random, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | c. 0.833

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by $$\overline{X}$$ and $$\overline{Y}$$, respectively. Assume that the assembly times of the workers are mutually independent.ComputeP($$\overline{X} $$ - $$\overline{Y}$$ < -1.5) is | d. 0.0359

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | b. disjoint but not independent.

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.68. 11 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 11 people, the number passing the test is between 2 and 4 inclusive? | b. 0.0308

If $$X$$ is uniformly distributed over the interval $$[0, 10]$$. Compute the probability that $$2 < X < 9$$. | c. 7/10

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,000 miles and a standard deviation of 2600 miles. What is the probability a particular tire of this brand will last longer than 57,400 miles? | a. 0.8413

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 3%? | a. 1068

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | a. 0.59

Which of the following assignments of probabilities to the sample points A, B, and C is valid if A, B, and C are the only sample points in the experiment? | a. P(A) = 0, P(B) = , P(C) =

Patients arriving at an outpatient clinic follow an exponential distribution with mean 15 minutes. What is the average number of arrivals per minute? | b. 0.0667

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected. Find the probability that at least three become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.0064

Carter Motor Company claims that its new sedan, the Libra, will average better than 19 miles per gallon in the city. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is sufficient evidence to support the claim that the mean is greater than 19 miles per gallon.

Determine whether the given conditions justify testing a claim about a population mean μ. The sample size is n = 17, σ is not known, and the original population is normally distributed. | a. Yes

Find the critical value or values of $$\chi^2$$ based on the given information. H1: σ > 3.5 n = 14 α = 0.05 | a. 22.362

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | d. the parking times of the entire set of students that park at the university

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 3.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | b. H0:σ = 3.3 mg H1:σ ≠ 3.3 mg

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $25,000 is 80%. Of the households surveyed, 60% had incomes over $25,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $25,000 a year is: | b. 0.22

The grade point averages for 10 randomly selected high school students are listed below. Assume the grade point averages are normally distributed. 2.0 3.2 1.8 2.9 0.9 4.0 3.3 2.9 3.6 0.8 Find a 98% confidence interval for the true mean. | a. (1.55, 3.53)

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.30 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.32 inches? | c. 2.28%

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,800 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1775 hours and not less than 1760 hours. | d. 0.0828

A normal distribution has mean μ = 60 and standard deviation = 6, find the area underthe curve between 58 and 63. | b. 0.322

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | a. 0.6554

Which of the following is not an element of descriptive statistical problems? | c. predictions are made about a larger set of data

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | d. 0.0401

The employees of a company were surveyed on questions regarding their educational background and marital status. Of the 600 employees, 400 had college degrees, 100 were single, and 60 were single college graduates. The probability that an employee of the company is single or has a college degree is | b. 0.733

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | c. 0.4920

Use the given information to find the P-value. The test statistic in a two-tailed test is z = -1.63. | a. 0.1032

A die is rolled 18 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | a. 1.581

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 45 minutes and a standard deviation of 6 minutes. Find the probability that a customer spends between 39 and 43 minutes in the supermarket. | b. 0.2120

The principal of a middle school claims that test scores of the seventh-graders at his school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 14.7. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | a. The error of rejecting the claim that the standard deviation is at least 14.7 when it really is at least 14.7.

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and her final exam exam counts for 55% of the final grade. | d. 78.9

A melting point test of $$n = 10$$ samples of a binder used in manufacturing a rocket propellant resulted in $$\overline{x}=154.2^oF$$. Assume that melting point is normally distributed with $$\sigma=1.5^oF$$. What is the P-value for the testing problem $$H\_0:\mu=155/ H\_1 eq 155$$? Let $$P(Z<1.67)=0.952$$. | b. 0.096

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 5 minutes? | c. 0.2865

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. So, 90% of the sample means will be greater than what value? | b. 41.8 minutes

It has been found that 40% of the employees who complete a sequence of executive seminars go on to become vice presidents. Assume that 10 graduates of the program are randomly selected.Find the probability that exactly 5 become vice presidents. (Note: please give the answer as a real number accurate to3 decimal places after the decimal point.) | d. 0.67

A group of volunteers for a clinical trial consists of 83 women and 78 men. 21 of the women and 20 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | c. 0.488

The lengths of pregnancies are normally distributed with a mean of 264 days and a standard deviation of 25 days. If 100 women are randomly selected, find the probability that they have a mean pregnancy between 264 days and 266 days. | c. 0.2881

A group of 49 randomly selected students has a mean age of 22.4 years with a population standard deviation of 3.8. Construct a 98% confidence interval for the population mean. | b. (21.1, 23.7)

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. A random sample of 16 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | d. 0.8767

The average score of all golfers for a particular course has a mean of 79 and a standard deviation of 5. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80. | d. 0.0228

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.5 to 4.5 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | d. 3.5 millimeters

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. What proportion of customers having to hold more than 4.5 minutes will hang up before placing an order? | a. 0.22313

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion is failure to reject the null hypothesis, state the conclusion in nontechnical terms. | c. There is not sufficient evidence to support the claim that the mean attendance is greater than 727.

Find the percentile for the data point. Data set: 51 36 48 75 75 75 49 data point: 51 | c. 43

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | b. 0.0166

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 200 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 200 and 275. | a. 0.4332

For some positive value of $$x$$, the probability that a standard normal variable is between 0 and $$x$$ is 0.1255. What is the value of $$x$$? Let $$P(Z>0)=0.5; P(Z<0.32) = 0.6255; P(Z<0.99)=0.8389$$. | d. 0.32

A sample consists of every 49th student from a group of 496 students. Identify which of these types of sampling is used: Stratified, systematic, cluster, random. | d. Systematic

The produce manager at a food store was interested in determining how many apples a person buys when they buy apples. He asked the cashiers over a weekend to count how many apples a person bought when they bought apples and record this number for analysis at a later time. The data is given below in the table. The random variable x represents the number of apples purchased and P(x) represents the probability that a customer will buy x apples. Determine the variance of the number of apples purchased by a customer. x 1 2 3 4 5 6 7 8 9 10 P(x) 0.05 0.19 0.20 0.25 0.12 0.10 0 0.08 0 0.01 | b. 3.57

The probability that a house in an urban area will be burglarized is 5%. If 20 houses are randomly selected, what is the mean of the number of houses burglarized? | c. 1

The probability that an individual is left-handed is 0.15. In a class of 93 students, what is the probability of finding five left-handers? | d. 0.002

A tennis player makes a successful first serve 59% of the time. If she serves 7 times, what is the probability that she gets exactly3 first serves in? Assume that each serve is independent of the others. | d. 0.2031

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 40 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9.1 hours. | b. 0.0069

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 72 statistics students generated the following 90% confidence interval: (0.438, 0.642). Based on the interval above, is the population proportion of females equal to 0.60? | c. Maybe. 0.60 is a believable value of the population proportion based on the information above.

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | a. three selected custermers

The width of a confidence interval estimate for a proportion will be | c. narrower for 90% confidence than for 95% confidence.

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 40% of the bulbs are pink and 60% are red, what is the probability that at least one of the bulbs will be pink if 4 bulbs are purchased? | c. 0.8704

A cereal company claims that the mean weight of the cereal in its packets is at least 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | b. The error of rejecting the claim that the mean weight is at least 14 oz. when it really is at least 14 oz.

Find the probability that in 200 tosses of a fair six-sided die, a five will be obtained at most 40 times. | c. 0.9105

The probability that house sales will increase in the next 6 months is estimated to be 0.25. The probability that the interest rates on housing loans will go up in the same period is estimated to be 0.74. The probability that house sales or interest rates will go up during the next 6 months is estimated to be 0.89. The probability that both house sales and interest rates will increase during the next 6 months is | b. 0.10

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x 0 1 2 3 4 P(x) 0.02 0.07 0.22 0.27 0.42 | b. 1.05

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | d. descriptive statistics.

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 2.8 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | a. 0.367879

In a recent study of 42 eighth graders, the mean number of hours per week that they watched television was 19.6 with a population standard deviation of 5.8 hours. Find the 98% confidence interval for the population mean. | d. (17.5, 21.7)

The probability that a tennis set will go to a tie-breaker is 17%. What is the probability that two of three sets will go to tie-breakers? | c. 0.072

For two events A and B, P(A) = 0.4, P(B) = 0.3, and P(A and B) = 0. It follows that A and B are | disjoint but not independent.

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $30,000 is 70%. Of the households surveyed, 50% had incomes over $30,000 and 70% had 2 cars. The probability that the residents of a household own 2 cars and have an income over $30,000 a year is: | 0.35

According to the Center for Disease Control, in 2004, 67.5% of all adults between the ages of 18 and 44 were considered current drinkers. Based on this estimate, if three randomly selected adults between the ages of 18 and 44 are selected, what is the probability that at least one is a current drinker? | 0.97

Assume that male and female births are equally likely and that the birth of any child does not affect the probability of the gender of any other children. Find the probability of at most two boys in five births. | 0.500

The probability is 2% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 10%. If 80% of the connectors are kept dry and 20% are wet, what proportion of connectors fail during the warranty period? | 0.036

Which of the following is not an element of descriptive statistical problems? | An inference made about the population based on the sample.

Which of the following assignments of probabilities to the sample points A, B, C and D is valid if A, B, C, and D are the only sample points in the experiment? | P(A) = 0, P(B) = , P(C) = , P(D) = 0

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.211

Which of the following is a discrete quantitative variable? | The number of cracks exceeding one-half inch in 10 miles of an interstate highway.

Jared was working on a project to look at global warming and accessed an Internet site where he captured average global surface temperatures from 1866. Which of the four methods of data collection was he using? | Retrospective study

An aircraft emergency locator transmitter (ELT) is a device designed to transmit a signal in the case of a crash. The Altigauge Manufacturing Company makes 85% of the ELTs, the Bryant Company makes 10% of them, and the Chartair Company makes the other 5%. The ELTs made by Altigauge have a 3% rate of defects, the Bryant ELTs have a 5% rate of defects, and the Chartair ELTs have a 10% rate of defects. If a randomly selected ELT is then tested and is found to be defective, find the probability that it was made by the Altigauge Manufacturing Company. | 0.718

Given that events C and D are independent, P(C) = 0.3, and P(D) = 0.6, are C and D mutually exclusive? | no

A random number generator is set top generate integer random numbers between 0 and 9 inclusive following a uniform distribution. What is the probability of the random number generator generating a 6? | 1/10

The breakdown of workers in a particular state according to their political affiliation and type of job held is shown here. Suppose a worker is selected at random within the state and the worker's political affiliation and type of job are noted. Political Affiliation Given the worker is a Democrat, what is the probability that the worker is in a white collar job. | 0.526

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.950

The collection and summarization of the socioeconomic and physical characteristics of the employees of a particular firm is an example of | descriptive statistics.

An experiment consists of randomly choosing a number between 1 and 10. Let E be the event that the number chosen is odd. List the sample points in E. | {1, 3, 5, 7, 9}

A T.V. show’s executives raised the fee for commercials following a report that the show received a “ No.1” rating in a survey of viewers. What type of the description is? | Observation study

The probability that a house in an urban area will be burglarized is 3%. If 30 houses are randomly selected, what is the probability that none of the houses will be burglarized? | 0.4010

After completing an inventory of three warehouses, a golf club shaft manufacturer described its stock of 14,542 shafts with the percentages given in the table. Suppose a shaft is selected at random from the 14,542 currently in stock, and the warehouse number and type of shaft are observed. Type of Shaft Given that the shaft is produced in warehouse 2, find the probability it has an stiff shaft. | 0.344

According to a survey result, 79.6% of respondents favored the gun law, 77.8% favored the death penalty for those convicted of murder and 62.7% were in favor of both. What is the probability that a randomly selected respondent was in favor of either the gun law or the death penalty for persons convicted of murder? Hint. Use the addition rules. | 0.947

For two events A and B, P(A) = 0.8, P(B) = 0.2, and P(A and B) = 0.16. It follows that A and B are | independent but not disjoint.

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is not defective? | 0.92

The following table shows the political affiliation of voters in one city and their positions on stronger gun control laws. | 0.314

The peak shopping time at home improvement store is between 8-11:00 am on Saturday mornings. Management at the home improvement store randomly selected 150 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sapmle of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the home improvement store. | number of items - discrete; total time - continuous

The New York State Health Department reports a 12% rate of the HIV virus for the “at-risk” population. Under certain conditions, a preliminary screening test for the HIV virus is correct 99% of the time. If someone is randomly selected from the at-risk population, what is the probability that they have the HIV virus if it is known that they have tested positive in the initial screening? | 0.931

Two events A and B are said to be \_\_\_\_\_\_\_\_\_ if P(A|B) = P(A) or if P(B|A) = P(B). | independent

A committee of three people is to be formed. The three people will be selected from a list of six possible committee members. A simple random sample of three people is taken, without replacement, from the group of six people. Using the letters A, B, C, D, E, F to represent the six people, list the possible samples of size three and use your list to determine the probability that B is included in the sample. (Hint: There are 20 possible samples.) | 1/2

A research group asked the students if they carry a credit card. The responses are listed in the table. If a student is randomly selected, find the probability that he or she owns a credit card given that the student is a freshman. Round your answer to three decimal places. | 0.833

A bin contains 15 defective (that immediately fail when put in use), 20 partially defective (that fail after a couple of hours of use), and 30 acceptable transistors. A transistor is chosen at random from the bin and put into use. If it does not immediately fail, what is the probability it is acceptable? | 0.60

The process of using sample statistics to draw conclusions about true population parameters is called | statistical inference.

A bag of colored candies contains 20 red, 25 yellow, 15 blue and 20 orange candies. An experiment consists of randomly choosing one candy from the bag and recording its color. What is the sample space for this experiment? | {red, yellow, blue, orange}

A group of volunteers for a clinical trial consists of 123 women and 178 men. 54 of the women and 46 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person is a man given that they have high blood pressure. | 0.460

If P(A) = 0.45, P(B) = 0.25, and P(B|A) = 0.45, are A and B independent? | no

Suppose that on a particular multiple choice question, 96% of the students answered correctly. What is the probability that a randomly selected student answered the question incorrectly? | 0.04

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $20,000 is 90%. Of the households surveyed, 60% had incomes over $20,000 and 60% had 2 cars. The probability that the residents of a household own 2 cars and have an income less than or equal to $20,000 a year is: | 0.06

The distribution of B.A. degrees conferred by a local college is listed below, by major. Major | 0.966

Mr. Ômô figures that there is a 65% chance that his university will set up a branch office in Lao Cai. If it does, he is 90% certain that she will be made director of this new branch. What is the probability that Ômô will be a Lao Cai branch office director? | 0.585

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the population? | all custormers

Flip a coin three times, create the sample space of possible outcomes (H: Head, T: Tail). | HHH HHT HTH HTT THH THT TTH TTT

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. | parking times of the 130 students

Given events C and D with probabilities P(C) = 0.3, P(D) = 0.2, and P(C and D) = 0.1, are C and D independent? | no

Brandon and Samantha each carry a bag containing a banana, a chocolate bar, and a licorice stick. Simultaneously, they take out a single food item and consume it. The possible pairs of food items that Brandon and Samantha consumed are as follows. chocolate bar - chocolate bar licorice stick - chocolate bar banana - banana chocolate bar - licorice stick licorice stick - licorice stick chocolate bar - banana banana - licorice stick licorice stick - banana banana - chocolate bar Find the probability that exactly one chocolate bar was eaten. | 4/9

The probability that a student at a certain college is male is 0.55. The probability that a student at that college has a job off campus is 0.67. The probability that a student at the college is male and has a job off campus is 0.35. If a student is chosen at random from the college, what is the probability that the student is male or has an off campus job? | 0.87

Sixty percent of the people that get mail-order catalogs order something. Find the probability that only three of 8 people getting these catalogs will order something. | 0.124

Which of the following is not true of statistics? | Statistics is used to answer questions with 100% certainty.

Both Nualart and Tom have a bag of candy containing a lollipop (LP), a cherry drop (CD), and a lemon drop (LD). Each takes out a piece and eats it. What are the possible pairs of candies eaten? Create the sample space of possible outcomes. | LD-LD CD-LD LP-LP LD-CD CD-CD LD-LP LP-CD

Which of the following is a continuous quantitative variable? | The amount of milk produced by a cow in one 24-hour period

At a Texas college, 60% of the students are from the southern part of the state, 30% are from the northern part of the state, and the remaining 10% are from out-of-state. All students must take and pass an Entry Level Math (ELM) test. 60% of the southerners have passed the ELM, 70% of the northerners have passed the ELM, and 90% of the out-of-state have passed the ELM. If a randomly selected student has passed the ELM, the probability the student is from out-of-state is \_\_\_\_\_\_\_\_. | 0.136

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 7. | 1/6

A group of volunteers for a clinical trial consists of 88 women and 77 men. 28 of the women and 39 of the men have high blood pressure. If one of the volunteers is selected at random find the probability that the person has high blood pressure given that it is a woman. | 0.318

According to a 2007 report published by the Columbia University, 69% of teens have family dinners five or more times a week, 11% of teens have used marijuana and the proportion of teens who have family dinners 5 or more times a week or use marijuana is 0.65. What is the probability that a teen has family dinners five or more times a week and uses marijuana? Hint. Use the addition rules. | 0.15

A company has 2 machines that produce widgets. An older machine produces 23% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine produces 3 times as many widgets as the older machine does. Given a randomly chosen widget was tested and found to be defective, what is the probability it was produced by the new machine? | 0.511

Which of the following is not an element of descriptive statistical problems? | predictions are made about a larger set of data

Which of the following is a discrete quantitative variable? | The number of employees of an insurance company

If you flip a coin three times, the possible outcomes are HHH HHT HTH HTT THH THT TTH TTT. What is the probability of getting at most one head? | 1/2

Those methods involving the collection, presentation, and characterization of a set of data in order to properly describe the various features of that set of data are called | descriptive statistics.

Flip a coin twice, create the sample space of possible outcomes (H: Head, T: Tail). | HH HT TH TT

In 2006, the General Social Survey asked 4,491 respondents how often they attended religious services. The responses were as follows: Frequency | 0.398

If two events A and B are \_\_\_\_\_\_\_\_\_\_, then P(A and B) = P(A)P(B). | independent

A greenhouse is offering a sale on tulip bulbs because they have inadvertently mixed pink bulbs with red bulbs. If 35% of the bulbs are pink and 65% are red, what is the probability that at least one of the bulbs will be pink if 5 bulbs are purchased? | 0.8840

For two events A and B, P(A) = 0.4, P(B) = 0.5. Then P(A or B) equals | 0.7, if A and B are independent.

At a Ohio college, 25% of students speak Spanish, 5% speak French, and 3% speak both languages. What is the probability that a student chosen at random from the college speaks Spanish but not French? | 0.22

Assume that P(C) = 0.5 and P(D) = 0.3. If C and D are independent, find P(C and D). | 0.15

Ms. Anne figures that there is a 40% chance that her company will set up a branch office in Ohio. If it does, she is 70% certain that she will be made manager of this new operation. What is the probability that Anne will be a Ohio branch office manager? | 0.28

Sixty-five percent of men consider themselves knowledgeable football fans. If 15 men are randomly selected, find the probability that exactly five of them will consider themselves knowledgeable fans. | 0.0096

According to the U.S. census, in 2005 25% of homicide victims were known to be female, 8.7% were known to be under the age of 18 and 2.7% were known to be females under the age of 18. What is the probability that a murder victim was known to be female or under the age of 18 based on these 2005 estimates? | 0.310

Forty percent of babies born in the U.S. in 2004 were still being breastfed at 6 months of age. If 4 children who were born in the U.S. in 2004 are randomly selected, what is the probability that none of them were breastfed for at least 6 months? | 0.1296

The probability is 5% that an electrical connector that is kept dry fails during the warranty period of a portable computer. If the connector is ever wet, the probability of a failure during the warranty period is 20%. If 90% of the connectors are kept dry and 10% are wet, what proportion of connectors fail during the warranty period? | 0.065

Which of the following is a continuous quantitative variable? | The volume of gasoline that is lost to evaporation during the filling of a gas tank.

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 63%. Of the households surveyed, 62% had incomes over $25,500 and 44% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.89

Assume that P(E) = 0.15 and P(F) = 0.48. If E and F are independent, find P(E and F). | 0.072

The outcome of an experiment is the number of resulting heads when a nickel and a dime are flipped simultaneously. What is the sample space for this experiment? | {0, 1, 2}

In Orange County, 51% of the adults are males. One adult is randomly selected for a survey involving credit card usage. It is later learned that the selected survey subject was smoking a cigar. Also, 7.5% of males smoke cigars, whereas 1.9% of females smoke cigars. Use this additional information to find the probability that the selected subject is a male. | 0.804

According to a survey of American households, the probability that the residents own 2 cars if annual household income is over $35,000 is 70%. Of the households surveyed, 50% had incomes over $35,000 and 80% had 2 cars. The probability that the residents of a household do not own 2 cars and have an income over $35,000 a year is: | 0.15

According to a survey of American households, the probability that the residents own 3 cars if annual household income is over $25,500 is 83%. Of the households surveyed, 62% had incomes over $25,500 and 84% had 3 cars. The probability that annual household income is over $25,500 if the residents of a household own 3 cars is: | 0.61

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, X. The probabilities corresponding to the 14 possible values of X are summarized in the given table. Answer the question using the following table. X(girls) | 0.029

In a study of pleas and prison sentences, it is found that 35% of the subjects studied were sent to prison. Among those sent to prison, 30% chose to plead guilty. Among those not sent to prison, 50% chose to plead guilty. If a study subject is randomly selected and it is then found that the subject entered a guilty plea, find the probability that this person was not sent to prison. | 0.756

Two white sheep mate. The male has both a white and a black fur-color gene. The female has only white fur-color genes. The fur color of the offspring depends on the pairs of fur-color genes that they receive. Assume that neither the white nor the black gene dominates. List the possible outcomes. W = white and B = black. | WW, BW

Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 210 students and carefully recorded their parking times. Identify the population of interest to the university administration. | the parking times of the entire set of students that park at the university

An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. What is the sample? | three selected custermers

A percentage distribution is given below for the size of families in one U.S. city. Size | 0.169

Which of the following is always true? | If A and B are disjoint, then they cannot be independent.

The probability that a tennis set will go to a tie-breaker is 15%. What is the probability that two of three sets will go to tie-breakers? | 0.057

If two balanced die are rolled, the possible outcomes can be represented as follows. (1, 1) (2, 1) (3, 1) (4, 1) (5, 1) (6, 1) (1, 2) (2, 2) (3, 2) (4, 2) (5, 2) (6, 2) (1, 3) (2, 3) (3, 3) (4, 3) (5, 3) (6, 3) (1, 4) (2, 4) (3, 4) (4, 4) (5, 4) (6, 4) (1, 5) (2, 5) (3, 5) (4, 5) (5, 5) (6, 5) (1, 6) (2, 6) (3, 6) (4, 6) (5, 6) (6, 6) Determine the probability that the sum of the dice is 4 or 12. | 1/9

Given events A and B with probabilities P(A) = 0.5,P(B) = 0.4, and P(A and B) = 0.2, are A and B independent? | yes

A survey of senior citizens at a doctor's office shows that 65% take blood pressure-lowering medication, 38% take cholesterol-lowering medication, and 7% take both medications. What is the probability that a senior citizen takes either blood pressure-lowering or cholesterol-lowering medication? | 0.96

Hahn is having his sixth litter. The prior litters have either been three normal pups or two normal pups and a runt. Assume the probability of either outcome is 50%. Create the sample space of possible outcomes (Normal: N, Runt: R). | NNR NNN

Suppose that the probability that a particular brand of light bulb fails before 1000 hours of use is 0.3. If you purchase 3 of these bulbs, what is the probability that at least one of them lasts 1000 hours or more? | 0.973

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 50 to 60. What is the mean outcome of this experiment? | 55

If the standard deviation for a Poisson distribution is known to be 3, the expected value of that Poison distribution is: | 9.

Which of the following is always true for a normal distribution? | P(2< x ≤ 8) = P(2 ≤ x < 8)

Product codes of 6, 7, 8 or 9 letters are equally likely. Which of the following statements are true? (i) Standard deviation of the number of letters in one code is 1.25. (ii) The probability of the event that the code has at least 7 letters is 0.5 | None of the other choices is correct

Assume that a procedure yields a binomial distribution with a trial repeated 4 times. Use the binomial probability formula to find the probability of 3 successes given the probability 1/6 of success on a single trial. | 0.0154

According to police sources a car with a certain protection system will be recovered 78% of the time. Find the probability that 3 of 8 stolen cars will be recovered. | 0.0137

Assume that the weights of quarters are normally distributed with a mean of 5.70 g and a standard deviation 0.062 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 2.67%

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is between 14.3 and 16.1. | 0.6826

The cumulative distribution function of a random variable X is given by What is the value of the probability density function at x = 1? | 0.15

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be less than 8 minutes? | 0.8647

The probability that a radish seed will germinate is 0.26. A gardener plants seeds in batches of 52. Find the standard deviation for the random variable X, the number of seeds germinating in each batch. | 3.16

| 1.55

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9 to 13.5 gallons per minute. Find the variance of the distribution. | 1.6875

The manager of a movie theater has determined that the distribution of customers arriving at the concession stand is Poisson distributed with a standard deviation equal to 2 people per 10 minutes. If the servers can accommodate 3 customers in a 10-minute period, what is the probability that the servers will be idle for an entire ten minute period? | 0.0183

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 65,000 miles and a standard deviation of 1500 miles. What warranty should the company use if they want 95% of the tires to outlast the warranty? | 62,533 miles

Let the random variable X have a discrete uniform distribution on the integers 12, 13, ..., 19. Find the value of P(X > 17). | 0.25

A multiple choice test has 22 questions each of which has 4 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 8 questions correctly? | 0.0869

An airline reports that it has been experiencing a 12% rate of no-shows on advanced reservations. Among 100 advanced reservations, find the probability that there will be fewer than 15 no-shows. | 0.7840

Suppose that prices of a certain model of new homes are normally distributed with a mean of $150,000. Find the percentage of buyers who paid between $148,885 and $151,220 if the standard deviation is $1250. | 64.9%

Find z if the normal curve area to the left of z is 0.1611. | -0.99

The number of hours you spend looking at YouTube on a typical Saturday night is distributed according to the density function with . Find the probability that, on a typical Saturday night, you spend between 0.75 and 1.25 hours watching YouTube. | 0.3602

Suppose that the random variable X has an exponential distribution with λ = 1.5. Find the mean and standard deviation of X. | Mean = 0.67; Standard deviation = 0.44

The random variable X represents the number of tests that a patient entering a hospital will have along with the corresponding probabilities. Find the mean and standard deviation for the random variable X. x | mean: 1.47; standard deviation: 1.19

Suppose a uniform random variable can be used to describe the outcome of an experiment with outcomes ranging from 41 to 81. What is the probability that this experiment results in an outcome less than 56? | 0.375

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(-a < Z < a) = 0.4314, find a. | 0.57

Suppose that X has a discrete uniform distribution on the integers 0 through 5. Determine the mean of the random variable Y = 4X | 10

In a recent survey, 85% of the community favored building a police substation in their neighborhood. If 20 citizens are chosen, what is the probability that the number favoring the substation is exactly 12? | 0.0046

Police estimate that 22% of drivers drive without their seat belts. If they stop 4 drivers at random, find the probability that all of them are wearing their seat belts. | 0.3701

The length of time it takes college students to find a parking spot in the library parking lot follows a normal distribution with a mean of 10 minutes and a standard deviation of 2.1 minute. Find the probability that a randomly selected college student will take between 8.5 and 10.5 minutes to find a parking spot in the library lot. | 0.3566

Assume that X has a normal distribution with the mean is μ = 60.0 and the standard deviation is σ = 4.0. Find the probability that X is less than 53.0. | 0.0401

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 5 minutes. What proportion of customers having to hold more than 6.5 minutes will hang up before placing an order? | 0.27253

The probability that a person has immunity to a particular disease is 0.06. Find the mean for the random variable X, the number who have immunity in samples of size 106. | 6.36

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 4.5 to 7.5 millimeters. Any ball bearing with a diameter of over 6.25 millimeters or under 4.55 millimeters is considered defective. What is the probability that a randomly selected ball bearing is defective? | 0.433

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 2.1. Based on this, how many defects should be expected if 2 containers are inspected? | 4.2

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 51 minutes and a standard deviation of 6.5 minutes. Find the number of minutes, m, for which the probability that a customer spends less than m minutes in the supermarket is 0.20. | 45.5

Product codes of 3, 4 or 5 letters are equally likely. What is the mean of the number of letters in 20 codes? | 80

An archer is able to hit the bull's-eye 57% of the time. If she shoots 15 arrows, what is the probability that she gets exactly 6 bull's-eyes? Assume each shot is independent of the others. | 0.0863

To calculate the probability of obtaining three aces in eight draws of a card with replacement from an ordinary deck, we would use the | binomial distribution.

When considering area under the standard normal curve, decide whether the area between z = 3 andz = -3 is bigger than, smaller than, or equal to the area betweenz =2.7 and z = 2.9. | bigger than

Let X be a continuous random variable with probability density function defined by What value must k take for this to be a valid density? | 2/3

Patients arriving at an outpatient clinic follow an exponential distribution at a rate of 15 patients per hour. What is the probability that a randomly chosen arrival to be more than 12 minutes? | 0.0498

Find the standard deviation for the binomial distribution which has the stated values of n = 2661 and p = 0.63. Round your answer to the nearest hundredth. | 24.91

The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4521, 0.3970, 0.1307, 0.0191, and 0.0010, respectively. Find the variance for the probability distribution. | 0.69

Suppose X is a uniform random variable over the interval [40, 50]. Find the probability that a randomly selected observation exceeds 43. | 0.7

The number of visible defects on a product container is thought to be Poisson distributed with a mean equal to 4.3. Based on this, the probability that 2 containers will contain less than 2 defects is: | 0.0018

Product codes of 1, 2 or 3 letters are equally likely. What is the mean of the number of letters in 50 codes? | 100

A card game is played in which the player wins if a face card is drawn (king, queen, jack) from a deck of 52 cards. If the player plays 10 times, what is the probability that the number of wins for the player is 5? | 0.0444

The probability that an individual is left-handed is 0.15. In a class of 30 students, what is the probability of finding five left-handers? | 0.186

In 2005, the property crime rates (per 100,000 residents) for the 50 states and the District of Columbia had a mean of 3477 and a standard deviation of 747. Assuming the distribution of property crime rates is normal, what percentage of the states had property crime rates between 3362 and 4055? | 0.34

For a standard normal distribution, find the percentage of data that are more than 2 standard deviations below the mean or more than 3 standard deviations above the mean. | 2.41%

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.2 years. Find the probability that the time until the first critical-part failure is less than 1 year. | 0.268384

A die is rolled 22 times and the number of times that two shows on the upper face is counted. If this experiment is repeated many times, find the mean for the number of twos. | 3.67

The following table is the probability distribution of the number of golf balls ordered by customers x | 9.39

Let X be a random variable has the following uniform density function f(x) = 0.1 when 0< x < 10. What is the probability that the random variable X has a value greater than 5.3? | 0.47

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 12.4 ounces and a standard deviation of 4.3 ounces. Find the number of ounces above which 86% of the dispensed sodas will fall. | 7.8

In a recent survey, 95% of the community favored building a police substation in their neighborhood. If 50 citizens are chosen, what is the probability that the number favoring the substation is exactly 42? | 0.0024

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 10% of people with home-based computers have access to on-line services. Suppose that 8 people with home-based computers were randomly and independently sampled. What is the probability that at least 1 of those sampled have access to on-line services at home? | 0.5695

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 60,500 miles and a standard deviation of 2800 miles. What is the probability a particular tire of this brand will last longer than 58,400 miles? | 0.7734

Find the standard normal-curve area between z = -1.3 and z = -0.4. | 0.2478

Let X be a continuous random variable with probability density function defined by Find the mean of X | 1/2

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3 minutes. Find the waiting time at which only 10% of the customers will continue to hold. | 6.9 minutes

On a 50-question multiple choice test , each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the random variable X, the number of correct answers. | 12.5

In a pizza takeout restaurant, the following probability distribution was obtained. The random variable X represents the number of toppings for a large pizza. Find the mean and standard deviation for the random variable X. x | mean: 1.04; standard deviation: 1.09

Suppose a uniform random variable can be used to describe the outcome of an experiment with the outcomes ranging from 30 to 80. What is the probability that this experiment results in an outcome less than 45? | 0.30

The Columbia Power Company experiences power failures with a mean of 0.120 per day. Use the Poisson Distribution to find the probability that there are exactly two power failures in a particular day. | 0.006

Let X be a normal random variable with a mean of 18.2 and a variance of 5. Find the value of c if P(X -1 < c) = 0.5221. | 17.32

A basketball player has made 95% of his foul shots during the season. If he shoots 3 foul shots in tonight's game, what is the probability that he makes all of the shots? | 0.857

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.5 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be more than 16.5 ounces. | 0.3385

When considering area under the standard normal curve, decide whether the area between z = -1.5 and z = 1.1 is bigger than, smaller than, or equal to the area between z = -1.1 and z = 1.5. | equal to

The probability density function of X, the lifetime of a certain type of electronic device (measured in hours), is given by Determine the value of | 0.5

| 2.46

Let X be a uniform random variable over the interval [0, 8] . What is the probability that the random variable X has a value greater than 3? | 0.625

Suppose that X has a discrete uniform distribution on the integers 20 to 79. Which of the followings are true? (i) P(X > 41) = 13/20 (ii) E(10X)= 495 | Both (i) and (ii)

A telemarketer found that there was a 1.5% chance of a sale from his phone solicitations. Find the probability of getting 28 or more sales for 1000 telephone calls. | 0.0016

Find the probability that in 20 tosses of a fair six-sided die, a five will be obtained at least 5 times. | 0.2313

A supermarket manager has determined that the amount of time customers spend in the supermarket is approximately normally distributed with a mean of 43.2 minutes and a standard deviation of 5.2 minutes. Find the probability that a customer spends less than 46.5 minutes in the supermarket. | 0.7180

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4 minutes, find the probability that it will take a randomly selected student between 2.5 and 10 minutes to park in the library lot. | 0.453176

Find the mean for the binomial distribution which has the stated values of n = 20 and p = 3/5. Round answer to the nearest tenth. | 12.0

| 1.60

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(Z > c) = 0.1093, find c. | 1.23

The range of the random variable X is {1, 2, 3, 6, u}, where u is unknown. If each value is equally likely and the mean of X is 10, determine the value of u. | 38

Assume that a procedure yields a binomial distribution with a trial repeated 64 times. Use the binomial probability formula to find the probability of 3 successes given the probability 0.04 of success on a single trial. | 0.221

Find z if the normal curve area between 0 and z is 0.4756. | 1.9703

The age (in years) of randomly chosen T-shirts in your wardrobe from last summer is distributed according to the density function with . Find the probability that a randomly chosen T-shirt is between 2 and 8 years old | 0.417

Let X represent the amount of time it takes a student to park in the library parking lot at the university. If we know that the distribution of parking times can be modeled using an exponential distribution with a mean of 4.8 minutes, find the probability that it will take a randomly selected student more than 9 minutes to park in the library lot. | 0.153355

Assume that x has a Poisson probability distribution. Find P(x = 6) when μ = 1.0. | .0005

Assume that z scores are normally distributed with a mean of 0 and a standard deviation of 1. If P(0.2 < Z < a) = 0.2314, find a. | 0.8805

A bank's loan officer rates applicants for credit. The ratings are normally distributed with a mean of 350 and a standard deviation of 50. If an applicant is randomly selected, find the probability of a rating that is between 310 and 295. | 0.0762

Find the standard normal-curve area to the left of z = -0.54. | 0.2946

Suppose that X is a continuous random variable whose probability density function is given by and for other values of What is the value of C? | 0.375

Find the mean for the binomial distribution which has the values of n = 33 and p = 0.2. Round answer to the nearest tenth. | 6.6

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 420 hours and a standard deviation of 15 hours. What percentage of the bulbs have lifetimes that lie within 2 standard deviations of the mean? | 95%

The probability is 0.85 that a person shopping at a certain store will spend less than $20. For random samples of 82 customers, find the mean number of shoppers who spend less than $20. | 69.7

Find the variance of the following probability distribution. x | 3.57

Suppose X has a Poisson probability distribution with = 9.0. Find μ and σ. | μ = 9.0, σ = 3.0

The owner of a fish market determined that the weights of catfish are normally distributed with the average weight for a catfish is 3.2 pounds with a standard deviation of 0.6 pound. A citation catfish should be one of the top 5% in weight. At what weight (in pounds) should the citation designation be established? | 4.19

Let the random variable X have a discrete uniform distribution on the integers Determine P(X < 6). | 0.5

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls followed a normal distribution with an average of $1000 per month and a standard deviation of $65 per month. Refer to such expenses as PCE's (personal call expenses). Using the distribution above, what is the probability that a randomly selected month had a PCE of between $875 and $1010? | 0.5339

Find z if the normal curve area to the right of z is 0.8997. | -1.2798

Suppose the cumulative distribution of the random variable X is Detemine | 0.25

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 3.3 minutes. What proportion of callers is put on hold longer than 2.8 minutes? | 0.42806

According to a college survey, 18% of all students work full time. Find the standard deviation for the random variable X, the number of students who work full time in samples of size 35. | 2.27

Suppose x is a uniform random variable over [10,90]. Find the probability that a randomly selected observation exceeds 26. | 0.8

The number of calls to an Internet service provider during the hour between 6:00 and 7:00 p.m. is described by a Poisson distribution with mean equal to 15. Given this information, what is the expected number of calls in the first 30 minutes? | 7.5

The on-line access computer service industry is growing at an extraordinary rate. Current estimates suggest that 25% of people with home-based computers have access to on-line services. Suppose that 10 people with home-based computers were randomly and independently sampled. What is the probability that exactly 5 of those sampled have access to on-line services at home? | 0.0584

Which of the following is not true about the standard normal distribution? | The area under the standard normal curve to the left of z = 0 is negative.

For a standard normal distribution, find the percentage of data that are between 3 standard deviations below the mean and 1 standard deviation above the mean. | 84.00%

For a standard normal distribution, find the percentage of data that are more than 1 standard deviation away from the mean. | 31.74%

According to a college survey, 12% of all students work full time. Find the mean for the number of students who work full time in samples of size 54. | 6.48

A basketball player is asked to shot free throws in sets of four. The player shoots 100 sets of 4 free throws. The probability distribution for making a particular number of free throws id given below. Determine the standard deviation for this discrete probability distribution. x | 1.32

A salesperson knows that 20% of her presentations result in sales. Find the probabilities that in the next 60 presentations at least 9 result in sales. | 0.8732

The tread life of a particular brand of tire is a random variable best described by a normal distribution with a mean of 61,000 miles and a standard deviation of 2100 miles. What is the probability a certain tire of this brand will last between 60,010 miles and 58,580 miles? | 0.1941

In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the probability that the number favoring the substation is more than 12? | 0.6482

LetZ is a standard normal variable, find the the probability that Z lies between 0 and 3.01. | 0.4987

An automobile service center can take care of 12 cars per hour. If cars arrive at the center randomly and independently at a rate of 8 per hour on average, what is the probability of the service center being totally empty in a given hour? | 0.0003

Suppose that X has a discrete uniform distribution on the integers 2 to 5. Find V(4X). | 20

If X is a normal random variable with μ = 50 and σ = 6, then the probability that X is not between 44 and 56 is | 0.3174.

Suppose the cumulative distribution function of the random variable X is Find the value of P(X>5). | 0.16

Assume that X is normally distributed with a mean of 23 and a standard deviation of 5. Find the value of c if P(X > c) = 0.0592. | 30.81

Find the probability that in 40 tosses of a fair six-sided die, a five will be obtained at most 11 times. | 0.9739

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 110 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure that lies within 3 standard deviations of the mean? | 99.7%

A die is rolled 80 times and the number of twos that come up is tallied. If this experiment is repeated many times, find the standard deviation for the random variable X, the number of twos. | 3.33

The accompanying table shows the probability distribution for x, the number that shows up when a loaded die is rolled. Find the variance for the probability distribution. x | 2.41

Let X be a uniform random variable over the interval [1, 9] . What is the probability that the random variable X has a value less than 6? | 0.625

In a binomial distribution with 10 trials, which of the following is true? | P(x > 7) = P(x ≥ 8)

In 2006, the percent of the voting-age population that was registered to vote for the 50 states and the District of Columbia had a mean of 63.5% with a standard deviation of 7.4. Assuming that the distribution is normal, what percentage of states had between 53 and 72 percent of it's voting-age population who were registered to vote? | 0.797

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value less than 32. | 0.6554

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 4.2 minutes. What proportion of customers having to hold more than 1.8 minutes will hang up before placing an order? | 0.65144

The diameters of ball bearings produced in a manufacturing process can be described using a uniform distribution over the interval 2.55 to 4.75 millimeters. What is the mean diameter of ball bearings produced in this manufacturing process? | 3.65 millimeters

Samples of 10 parts from a metal punching process are selected every hour. Let X denote the number of parts in the sample of 10 that require rework. If the percentage of parts that require rework at 3%, what is the probability that X exceeds 2? | 0.0028

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.42 inches and a standard deviation of 0.11 inches. What percentage of bolts will have a diameter greater than 0.30 inches? | 86.23%

The area to the right of z = 1.0 is equal to | 0.1587.

If Z is a standard normal variable, find the the probability that Z is less than 1.13. | 0.8708

Suppose the probability density function of the length of computer cables is from 10 to 12 millimeters. Determine the mean and standard deviation of the cable length. | mean = 11 and standard deviation = 0.58

Patients arriving at an outpatient clinic follow an exponential distribution with mean 22 minutes. What is the average number of arrivals per minute? | 0.0455

Find the standard deviation for the probability distribution. x | 0.98

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 14 ounces and a standard deviation of 4.2 ounces. Find the number of ounces above which 98% of the dispensed sodas will fall. | 5.4

According to the 2003 National Survey on Drug Use and Health, 55.3% of males have never used marijuana. Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.9990

A test consists of 10 true/false questions. To pass the test a student must answer at least 4 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? | 0.8281

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve between 58 and 63. | 0.322

The time (in years) until the first critical-part failure for a certain car is exponentially distributed with a mean of 3.5 years. Find the probability that the time until the first critical-part failure is 6 years or more. | 0.180092

The systolic blood pressure of 18-year-old women is normally distributed with a mean of 115 mmHg and a standard deviation of 10 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 140 mmHg? | 96.5%

Let Z is a standard normal variable, find P(-0.73 < Z < 2.27). | 0.7557

According to a college survey, 15% of all students work full time. Find the mean for the random variable X, the number of students who work full time in samples of size 42. | 6.30

The amount of soda a dispensing machine pours into a 12 ounce can of soda follows a normal distribution with a mean of 12.27 ounces and a standard deviation of 0.18 ounce. The cans only hold 12.51 ounces of soda. Every can that has more than 12.51 ounces of soda poured into it causes a spill and the can needs to go through a special cleaning process before it can be sold. What is the probability a randomly selected can will need to go through this process? | 0.0912

If the probability of a newborn child being female is 0.5, find the probability that in 50 births, 35 or more will be female. | 0.0033

On a multiple choice test with 12 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the standard deviation for the random variable X, the number of correct answers. | 1.500

The diameter of ball bearings produced in a manufacturing process can be explained using a uniform distribution over the interval 4.5 to 6.5 millimeters. What is the probability that a randomly selected ball bearing has a diameter greater than 5.85 millimeters? | 0.325

Assume that X has a normal distribution with the mean is μ = 15.2 and the standard deviation is σ = 0.9. Find the probability that X is greater than 15.2. | 0.5000

The random variable X represents the number of girls in a family of three children. Assuming that boys and girls are equally likely, find the probability that the number of girls is two or more. | 0.50

The diameters of bolts produced by a certain machine are normally distributed with a mean of 0.34 inches and a standard deviation of 0.01 inches. What percentage of bolts will have a diameter greater than 0.332 inches? | 78.81%

LetZ is a standard normal variable, find theprobability that Z lies between -2.41 and 0. | 0.4920

A normal distribution has mean μ = 60 and standard deviation σ = 6, find the area under the curve to the right of 64. | 0.2525

The probability of winning a certain lottery is 1/9999. For people who play 246 times, find the standard deviation for the random variable X, the number of wins. | 0.1568

The time between customer arrivals at a furniture store has an approximate exponential distribution with mean of 9.5 minutes. If a customer just arrived, find the probability that the next customer will not arrive for at least 21 minutes. | 0.109643

The number of weeds that remain living after a specific chemical has been applied averages 1.21 per square yard and follows a Poisson distribution. Based on this, what is the probability that a 1 square yard section will contain less than 5 weeds? | 0.9920

Suppose that 14% of people are left handed. If 5 people are selected at random, what is the probability that exactly 2 of them are left handed? | 0.1247

The volumes of soda in quart soda bottles are normally distributed with a mean of 22.3 oz and a standard deviation of 1.6 oz. What is the probability that the volume of soda in a randomly selected bottle will be less than 23.1 oz? | 0.6915

In one region, the September energy consumption levels for single-family homes are normally distributed with a mean of 1155 kWh and a standard deviation of 218 kWh. For a randomly selected home, find the probability that the September energy consumption level is between 1050 kWh and 1225 kWh. | 0.3109

If a random variable has the normal distribution with μ = 30 and σ = 5, find the probability that it will take on the value between 31 and 35. | 0.262

Suppose X is a uniform random variable over the interval [40, 70]. Find the standard deviation of X. | 8.66

A new phone system was installed last year to help reduce the expense of personal calls that were being made by employees. Before the new system was installed, the amount being spent on personal calls follows a normal distribution with an average of $705 per month and a standard deviation of $48 per month. Refer to such expenses as PCE's (personal call expenses). Find the probability that a randomly selected month had a PCE that falls below $650. | 0.1259

The lengths of human pregnancies are normally distributed with a mean of 269 days and a standard deviation of 16 days. What is the probability that a pregnancy lasts at least 302 days? | 0.0196

A machine pours beer into 16 oz. bottles. Experience has shown that the number of ounces poured is normally distributed with a standard deviation of 1.2 ounces. Find the probabilities that the amount of beer the machine will pour into the next bottle will be between 12.5 and 14.5 ounces. | 0.1039

A machine is set to pump cleanser into a process at the rate of 5 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 4.5 to 7.5 gallons per minute. Find the probability that between 4.8 gallons and 6.2 gallons are pumped during a randomly selected minute. | 0.47

Assume that the weights of quarters are normally distributed with a mean of 5.73 g and a standard deviation 0.071 g. A vending machine will only accept coins weighing between 5.48 g and 5.82 g. What percentage of legal quarters will be rejected? | 89.73%

Suppose X is a uniform random variable over the interval [20, 90]. Find the probability that a randomly selected observation is between 23 and 85. | 0.89

At one college, GPAs are normally distributed with a mean of 2.4 and a standard deviation of 0.3. What percentage of students at the college have a GPA between 2.1 and 2.9? | 79.4%

A tennis player makes a successful first serve 53% of the time. If she serves 6 times, what is the probability that she gets exactly 3 first serves in? Assume that each serve is independent of the others. | 0.3091

In 2004, the infant mortality rate (per 1,000 live births) for the 50 states and the District of Columbia had a mean of 6.98 and a standard deviation of 1.62. Assuming that the distribution is normal, what percentage of states had an infant mortality rate between 5.6 and 7.1 percent? | 0.3324

The weekly salaries of elementary school teachers in one state are normally distributed with a mean of $595 and a standard deviation of $43. What is the probability that a randomly selected elementary school teacher earns more than $555 a week? | 0.8239

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.25 to 12.25 gallons per minute. Find the probability that between 10.5 gallons and 11.15 gallons are pumped during a randomly selected minute. | 0.217

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13.5 ounces and a standard deviation of 3.5 ounces. Find the probability that between 13 and 14.4 ounces are dispensed in a cup. | 0.1583

A catalog company that receives the majority of its orders by telephone conducted a study to determine how long customers were willing to wait on hold before ordering a product. The length of time was found to be a random variable best approximated by an exponential distribution with a mean equal to 6.5 minutes. What is the probability that a randomly selected caller is placed on hold fewer than 7.5 minutes? | 0.684579

What is the standard deviation of the following probability distribution? x | 1.54

The number of customers that arrive at a fast-food business during a one-hour period is known to be Poisson distributed with a mean equal to 8.60. What is the probability that exactly 8 customers will arrive in a one-hour period? | 0.1366

Assume that a procedure yields a binomial distribution with a trial repeated 12 times. Use the binomial probability formula to find the probability of 5 successes given the probability 0.25 of success on a single trial. | 0.103

When considering area under the standard normal curve, decide whether the area to the right of z = 2 is bigger than, smaller than, or equal to the area to the right of z = 2.5. | bigger than

Let X be a uniform random variable over the interval [0.1, 5] . What is the probability that the random variable X has a value less than 2.1? | 0.408 or 0.4082

The number of ounces of soda that a vending machine dispenses per cup is normally distributed with a mean of 13 ounces and a standard deviation of 2.5 ounces. Find the probability that more than 14.8 ounces is dispensed in a cup. | 0.2358

A machine is set to pump cleanser into a process at the rate of 10 gallons per minute. Upon inspection, it is learned that the machine actually pumps cleanser at a rate described by the uniform distribution over the interval 9.75 to 11.25 gallons per minute. What is the probability that at the time the machine is checked it is pumping more than 10.65 gallons per minute? | 0.40

The thickness measurements of a coating process are uniform distributed with values 0.1, 0.14, 0.18, 0.16. Determine the standard deviation of the coating thickness for this process. | 0.03

In one city, the probability that a person will pass his or her driving test on the first attempt is 0.59. 23 people are selected at random from among those taking their driving test for the first time. What is the probability that among these 23 people, the number passing the test is between 15 and 18 inclusive? | 0.3362

The lifetimes of light bulbs of a particular type are normally distributed with a mean of 362 hours and a standard deviation of 7 hours. What percentage of the bulbs have lifetimes that lie within 1 standard deviation of the mean? | 68%

The probability that a house in an urban area will be burglarized is 15%. If 30 houses are randomly selected, what is the mean of the number of houses burglarized? | 4.5

The owner of a fish market has an assistant who has determined that the weights of catfish are normally distributed, with mean of 3.5 pounds and standard deviation of 0.7 pound. If a sample of 64 fish is randomly selected, what is probability that the sample mean is more than 3.7 pounds? | 0.0111

Each year advertisers spend billions of dollars purchasing commercial time on network television. In the first 6 months of one year, advertisers spent $1.1 billion. In a recent article, the top 10 leading spenders and how much each spent (in million of dollars) were listed: Company A: $73.7 Company F: $26.7 Company B: $63.9 Company G: $26.4 Company C: $57.9 Company H: $22.8 Company D: $57.1 Company I: $21.1 Company E: $32 Company J: $19.8 Calculate the sample variance. | 422.940

The amount of gasoline purchased per car at a large service station is normally distributed with the mean of $47 and a standard deviation of $5. A random sample of 47 is selected, describe the sampling distribution for the sample mean. | Normal with a mean of $47 and a standard deviation of $0.73

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 26 minutes and a standard deviation of 3 minutes. A random sample of 30 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

An electrical firm manufactures a certain type of light bulb that has a mean light of 1,900 hours and a standard deviation of 200 hours. Find the probability that a random sample of 100 bulbs will have an average life of not more than 1,975 hours and not less than 1,860 hours. | 0.9772

Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows. 0 2 3 4 2 3 4 6 7 2 3 4 6 9 8 Construct the dot plot for the given data. |

The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. | 55.8

Use the data to create a stemplot. The following data show the number of laps run by each participant in a marathon. 46 65 55 43 51 48 57 30 43 49 32 56 |

The data below represent the amount of grams of carbohydrates in a serving of breakfast cereal in a sample of 11 different servings. 11 15 23 29 19 22 21 20 15 25 17 What is the value of IQR? | 8

The Kappa lata Sigma Fraternity polled its members on the weekend party theme. The vote was as follows: six for toga, four for hayride, eight for beer bash, and two for masquerade. Display the vote count in a Pareto chart |

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.5 hours and the standard deviation is 1.7 hours. If 64 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 9 hours. | 0.0093

Suppose that and =15 for a population. In a sample where n = 100 is randomly taken, what is the variance for the sample mean? | 0.15

Car batteries produced by company A have a mean life of 3.5 years with a standard deviation of 0.4 years. A similar battery producted by company B has a mean life of 3.3 years and a standard deviation of 0.3 years. What is the probability that a random sample of 25 batteries from company A will have a mean life of at least 0.4 years more thanthe mean life of a sample of 36 batteries from company B? | 0.0166

Assume that blood pressure readings are normally distributed with a mean of 122 and a standard deviation of 6.1. If 64 people are randomly selected, find the probability that their mean blood pressure will be less than 123. | 0.9052

A stem-and-leaf diagram for a set of examination scores is given below. Find sample median of these data. Stem | 55.5

Find the mean of the data summarized in the given frequency distribution. Daily Low Temperature (F) | 53.4

Find the mode(s) for the given dample data 98, 25, 98, 13, 25, 29, 56, 98 | 98

A study of the amount of time it take a mechanic to rebuild the transmission for a 1992 Chevrolet Cavalier shows that the mean is 8.4 hours and the standard deviation is 1.8 hours. If 49 mechanics are randomly selected, find the probability that their mean rebuild time exceeds 8.5 hours. | 0.3487

Use the given paired data to construct a scatterplot. x 1 -3 -3 -2 3 5 -1 8 -4 -1 y -4 -6 -7 2 3 3 -6 3 -3 -3 |

Find the variance of the given data. Round your answer to one more decimals than the original data. 5.0, 8.0, 4.9, 6.8 and 2.8 | 3.96

Sampling distributions describe the distribution of | statistics.

The following data give the distribution of the types of houses in a town containing 30,000 houses. Capes: 7500, Garrisons: 10,500, Splits: 12,000 Construct a pie chart representing the given data set. | Capes: 25%, Garrisons: 35% , Splits: 40%

Construct the stem-and-leaf diagram for the below data. 16.9; 15.2; 17.5; 15.5; 16.8; 16.8; 17.1; 17.5; 15.3. | Stem Leaf 15 235 16 889 17 155

Elaine gets quiz grades of 67, 64, and 87. She gets a 84 on her final exam. Find the mean grade if the quizzes each count for 15% and final exam counts for 55% of the final grade. | 78.9

The distances traveled (in miles) to 7 different swim meets are given below: 12, 18, 31, 46, 69, 71, 85. Find the median distance traveled. | 46 miles

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 48 minutes and a standard deviation of 10 minutes. A random sample of 36 cars is selected. What is the probability that the sample mean will be between 39 and 48 minutes? | 0.500

Fred, a local mechanic, gathered the following data regarding the price, in dollars, of an oil and filterchande at twelve competing service stations: 32.95 24.95 26.95 28.95 18.95 28.95 30.95 22.95 24.95 26.95 29.95 28.95 Compute the range of data. | 14

The amount of bleach a machine pours into bottles has a mean of 28 oz. with a standard deviation of 1.05 oz. Suppose we take a random sample of 25 bottles filled by this machine. What is the standard deviation for the sample mean? | 0.21

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. Compute P( - < -1.5) is | 0.0359

The weights of the fish in a certain lake are normally distributed with a mean of 15 lb and a standard deviation of 5. If 4 fish are randomly selected, what is the probability that the mean weight will be between 12.6 and 18 lb. | 0.7164

The test scores of 32 students are listed below. Find Q3. 32 37 41 44 46 48 53 55 56 57 59 63 65 66 68 69 70 71 74 74 75 77 78 79 80 82 83 86 89 92 95 99 | 79.5

Which of the following statements is false i) If X1, X2,…,Xn is a random sample of size n,the sample standard deviation S is nota statistic. ii) The probability distribution of a statistic is called a sampling distribution. iii) A statistic is any function of the observations in a random sample. iv) The sampling distribution of a statistic does not depend on the distribution of the population. | i) and iv)An electrical firm manufactures a certain type of light bulb that has a mean light of 1,850 hours and a standard deviation of 190 hours. Find the probability that a random sample of 100 bulbs will have an average life of more than 1,870 hours. | 0.1463

A store manager counts the number of customers who make a purchase in his store each day. The data are as follows. 10 11 8 14 7 10 10 11 8 7 Construct the dot plot for the given data. |

The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. | 76.4

Use the data to create a stemplot. The attendance counts for this season's basketball games are listed below. 227 239 215 219 221 233 229 233 235 228 245 231 |

A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequence histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure reading were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 119 inclusive? | 35%

Assume that the heights of men are normally distributed with a mean of 69.8 inches and a standard deviation of 2.4 inches. If 36 men are randomly selected, find the probability that they have a mean height greater than 70.8 inches. | 0.0062

Use the given paired data to construct a scatterplot. x 0.25 0.47 0.32 0.63 -0.27 0.25 0.15 0.32 y 0.44 0.56 -0.04 0.52 -0.68 0.9 0.88 0.19 |

The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below: 0.165 0.114 0.503 0.392 0.579 0.311. Find the range of data. | 0.465

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(102000, 33002). The distribution of the difference of the sample mean | normal with mean 0 and standard deviation 1347.22

The average score of all golfers for a particular course has a mean of 80 and a standard deviation of 3. Suppose 100 golfers played the course today. Find the probability that the average score of the 100 golfers exceeded 80.5. | 0.0478

After reviewing a movie, 800 people rated the movie as excellent, good, or fair. The following data give the rating distribution. Excellent: 160, Good: 400, Fair: 240 Construct a pie chart representing the given data set. |

The scores for a statistics test are as follows: Compute the mean score. | 73.90

Use the given sample data to find three quartiles: 15, 21, 3, 6, 10, 28, 36, 1 | 4.5, 12.5, 24.5

Ten cartons of fragile ceramic castings were shipped on each of two air freight carries. On delivery at their destination the cartons were opened and inspected. The number of damaged items per carton were as follows: 17, 20, 1, 18, 5, 14, 18, 10, 6, 2. Assume that you are finding the frequency distribution using groupings: 1-4 inclusively, 5-8 inclusively, 9-12 inclusively and so on.What is the frequency of the interval 5-8? | 2

For women aged 18-24, systolic blood pressures ( in mm Hg) are normally distributed with a mean of 115 and a standard deviation of 13. If 25 women aged 18-24 are randomly selected, find the probability that their mean systolic blood pressures is between 119 and 122. | 0.0584

The mean of a data set is 36.71, and the sample standard deviation s is 3.22. Find the interval representing measurements within one standard deviation of the mean. | (33.49, 39.93)

Use the given sample data to find Q1. 55, 52, 52, 52, 49, 74, 67, 55. | 52.0

A population of Australian Koala bears has a mean height of 21 inches and a standard deviation of 4.5 inches. You plan to choose a sample of 64 bears at random. What is the probability of a sample mean between 21 and 22. | 0.4623

The amount of bleach a machine pours into bottles has a mean of 24 oz. with a standard deviation of 1.5 oz. Suppose we take a random sample of 44 bottles filled by this machine. So, 85% of the sample means will be greater than what value? | 23.77

The amount of corn chips dispensed into a 20-ounce bag by the dispensing machine has been identified at possessing a normal distribution with a mean of 20.5 ounces and a standard deviation of 0.5-ounce. Suppose 100 bags of chips were randomly selected from this dispensing machine. Find the probability that the sample mean weight of these 100 bags exceeded 20.55 ounces. | 0.1587

Use the data to create a stemplot. The midterm test scores for the seventh-period typing class are listed below. 85 77 93 91 74 65 68 97 88 59 74 83 85 72 63 79 |

For the sample below, find the number of observations that are within 1.5 standard deviations of the mean, i.e. the number of observations lie the interval (μ - 1.5σ; μ + 1.5σ). 2, 3, 5, 5, 6, 3, 6, 5, 6, 9, 2, 5, 3, 5, 6, 3, 5, 6, 6, 9. | 16

The time for a worker to assemble a component is normally distributed with mean 15 minutes and variance 4. Denote the mean assembly times of 16 day-shift workers and 9 night-shift workers by and , respectively. Assume that the assembly times of the workers are mutually independent. The distribution of - is | normal with mean 0 and standard deviation 5/6.

A sociologist recently conducted a survey of senior citizens who have net worths too high to qualify for Medicaid but have no private health insurance. The ages of the 25 uninsured senior citizens were as follows: Find the median of the observations. | 74

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 46 minutes and a standard deviation of 11 minutes. A random sample of 25 cars is selected. What is the probability that the sample mean is between 43 and 52 minutes? | 0.9105

For sample sizes greater than 50, the sampling distribution of the mean will be approximately normally distributed | regardless of the shape of the population.

The mean diameter of marbles manufactured at a particular toy factory is 0.850 cm with a standard deviation of 0.010cm. What is the probability of selecting a random sample of 64 marbles that has a mean diameter greater than 0.852 cm? | 0.0548

The attendace counts for this season’s basketball games are listed below: 227 239 215 219 221 233 229 233 235 228 245 231 Use the data to creat a sterm plot. |

During one recent year, U.S. consumers redeemed 6.79 billion manufacturers' coupons and saved themselves $2.52 billion. Calculate and interpret the mean savings per coupon. | The average savings was $0.37 per coupon.

A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below: 95, 38, 221, 122, 258, 237, 233. Find the median number of newspapers sold | 221

Find the variance for the given data. Round your answer to one more decimals than original data 1, 4, -5, -9, and 6 | 39.3

The amount of time required for an oil and filter change on an automobile is normally distributed with a mean of 30 minutes and a standard deviation of 6 minutes. A random sample of 25 cars is selected. So, 90% of the sample means will be greater than what value? | 28.5 minutes

The lengths of pregnancies are normally distributed with a mean of 269 days and a standard deviation of 25 days. If 64 women are randomly selected, find the probability that they have a mean pregnancy between 268 days and 271 days. | 0.3644

At a computer manufacturing company, the actual size of computer chips is normally distributed with a mean of 0.95 centimeter and a standard deviation of 0.02 centimeter. A random sample of 4 computer chips is taken. What is the variance for the sample mean? | 0.0001

Use the given sample data to find three quartiles: 5, 21, 13, 16, 11, 28, 36, 13, 22 | 12, 16, 25

Construct the cumulative frequency distribution that coressponds to the given frequency distribution |

Find the standard deviation for the given sample data: 2 6 2 2 1 4 4 2 4 2 3 8 4 2 2 7 7 2 3 11 | 2.6

Sales prices of baseball cards from the 1980s are known to possess a normal distribution with a mean sale price of $5.25 and a standard deviation of $2.80. Suppose a random sample of 64 cards from the 1980s is selected. Describe the sampling distribution for the sample mean sale price of the selected cards. | Normal with a mean of $5.25 and a standard deviation of $0.35

|

To determine the difference , if any, between two brands of radial tires, 12 tires of each brand are tested. Assume that the lifetimes of both brands of tires come from the same normal distribution N(12500, 33002). Compute | 0.0314

Which of the following is true about the sampling distribution of the sample mean? | The mean of the sampling distribution is always μ.

Calculate the range of the following data set: 7, 8, 4, 1, 4, 15, 5, 8, 5 | 14

If the amount of gasoline purchased per car at a large service station has a population mean of $34 and a population standard deviation of $2 and a random sample of 100 cars is selected, find the value of the standard deviation of the sample mean. | 0.2

Find the mode(s) for the given sample data 11, 13, 11, 23, 22, 24, 56, 22, 72, 15, 27 | 11 and 22

A manufacturer records the number of errors each work station makes during the week. The data are as follows. 6 3 2 3 5 2 0 2 5 4 2 0 1 Construct the dot plot for the given data. |

A data processing firm sampled 75 small businesses to find the number of days their computer systems were down during the previous three months. The distribution of responses is given below. Find the sample mean. Days of down time | 2.2

Health care issues are receiving much attention in both academic and political arenas. A sociologist recently conducted a survey of citizens over 60 years of age whose net worth is too high to qualify for Medicaid and have no private health insurance. The ages of 25 uninsured senior citizens were as follows: 60 61 62 63 64 65 66 68 68 69 70 73 73 74 75 76 76 81 81 82 86 87 89 90 92 Identify the first quartile of the ages of the uninsured senior citizens. | 65.5

A study of the checkout times of 100 customers at a supermarket resulted in the distribution below. Find the mean and standard deviation. x (minutes) | 3.3 and 1.4599

Find the variance for the given sample data 53 52 75 62 68 58 49 49 | 89.6

Sample variance is | a statistic.

One year, professional sports players salaries averaged $1.55 million with a standard deviation of $0.75 million. Suppose a sample of 100 major league players was taken. Find the approximate probability that the average salary of the 100 players exceeded $1.45 million. | 0.9088

The top speeds for a sample of five new automobiles are listed below. Calculate the standard deviation of the speeds. 105, 145, 190, 140, 175 | 33.05

Find the mode(s) for the given data | 6.8 and 6.5

The amount of bleach a machine pours into bottles has a mean of 36 oz. with a standard deviation of 0.55 oz. Suppose we take a random sample of 56 bottles filled by this machine. So, 75% of the sample means will be less than what value? | 36.05

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 108. Suppose a random sample of 21 students took the test, and the standard deviation of their scores is 115. What is the test statistic for the test H1: σ ≠ 108. | 22.68

The FPT university claims that 20% of its graduates are women. In a graduating class of 250 students, 60 were women. At = 0.05, does this suggest that the school is believable? Let z0.025 = 1.96 and z0.05 = 1.65. | Yes, because [z0] = 1.58 < z0.025

A cereal company claims that the mean weight of the cereal in its packets is at least 14.4 oz. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 14.4 H1: μ >14.4

The waiting times (in minutes) of customers at the TienPhong Bank, where customers enter a single waiting line that feeds three teller windows, are normally distributed. A random sample of 6 has mean of 7.07 and standard deviation of 0.53. Construct a 94% upper confidence bound for the population standard deviation. Let and | 1.06

In order to fairly set flat rates for auto mechanics, a shop foreman needs to estimate the average time it takes to replace a fuel pump in a car. How large a sample must he select if he wants to be 99% confident that the true average time is within 8 minutes of the sample average? Assume the standard deviation of all times is 21 minutes. Let z0.005 = 2.58. | 46

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.09 for a two-tailed test. | ±1.695

A confidence interval was used to estimate the proportion of statistics students that are female. A random sample of 100 statistics students generated the following 99% confidence interval: (0.438, 0.642). Using the information above, what total size sample would be necessary if we wanted to estimate the true proportion to within 0.04 using 95% confidence? | 597

A random sample of 42 students has a mean annual earnings of $1200 and a population standard deviation of $230. Construct a 95% confidence interval for the population mean, μ. | ($1130, $1270)

A university dean is interested in determining the proportion of students who receive some sort of financial aid. Rather than examine the records for all students, the dean randomly selects 200 students and finds that 118 of them are receiving financial aid. Use a 95% confidence interval to estimate the true proportion of students on financial aid. | (0.522, 0.658)

Construct a 90% confidence interval for the population mean, μ. Assume the population has a normal distribution. In a recent study of 22 eighth graders, the mean number of hours per week that they watched television was 20.5 with a standard deviation of 4.6 hours. | (18.81, 22.19)

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 20 in every one thousand. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.02 H1: p <0.02

Find the test statistic t0 for a sample with n = 10, = 7.9, s = 1.3, and ifH1:µ > 8.0. Round your answer to three decimal places. | -0.243

Find the critical value or values of based on the given information. H1: σ > 4.5 n = 19 = 0.05 | 28.869

The claim is that the proportion of drowning deaths of children attributable to beaches is more than 0.25, and the sample statistics include n= 690 drowning deaths of children with 35% of them attributable to beaches. Find the value of the test statistic z using . | 6.07

A cereal company claims that the mean weight of the cereal in its packets isdifferent from 14 oz. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean weight is 14 oz. when it really is 14 oz.

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% lower confidence bound for the standard deviation of weights for all such bats. Let and | 0.193

The standard IQ test has a mean of 106 and a standard deviation of 12. We want to be 90% certain that we are within 4 IQ points of the true mean. Determine the required sample size. | 25

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a left-tailed test (H1:µ <µ0). | -2.32

A researcher wishes to estimate the number of households with two cars. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 6%? A previous study indicates that the proportion of households with two cars is 25%. | 283

It is desired to estimate the average total compensation of CEOs. Data were randomly collected from 32 CEOs and the 95% confidence interval was calculated to be ($3 212 540, $6 020 240). Which of the following interpretations is correct? | We are 95% confident that the average total compensation of all CEOs falls in the interval $3 212 540 to $6 020 240.

The width of a confidence interval estimate for a proportion will be | narrower for 90% confidence than for 99% confidence.

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A sample of 28 randomly selected students has a mean test score of 82.5 with a standard deviation of 9.2. | (78.93, 86.07)

The principal of a middle school claims that test scores of the seventh-graders at his school varydifferent fromthe test scores of seventh-graders at a neighboring school, which have variation described by σ = 24.1. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the standard deviation is 24.1 when it really is 24.1.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 78. Sample data: n = 24, s = 15.3. The sample data appear to come from a population that is normally distributedand σ is unknown. | Student t

The Graduate Record Examination (GRE) is a test required for admission to many U.S. graduate schools. Students’ scores on the verbal reasoning portion of the GRE follow a normal distribution with a standard deviation of 120. Suppose a random sample of 10 students took the test, and the standard deviation of their scores is 97.2. What is the test statistic for the test H1: σ ≠120. | 5.90

A telephone company claims that 25% of its customers have at least two telephone lines. The company selects a random sample of 500 customers and finds that 108 have two or more telephone lines. At = 0.05, compute the value of the test statistic to test the company's claim. | -1.76

In order to set rates, an insurance company is trying to estimate the number of sick days that full time workers at an auto repair shop take per year. A previous study indicated that the standard deviation was 3.2 days. How large a sample must be selected if the company wants to be 95% confident that the true mean differs from the sample mean by no more than 2 day? Let z0.05 = 1.96. | 10

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.01 for a two-tailed test. | ±2.575

A regional hardware chain is interested in estimating the proportion of their customers who own their own homes. There is some evidence to suggest that the proportion might be around 0.825. Given this, what sample size is required if they wish a 94 percent confidence level with a error of ± 0.025? | About 817

A survey of 200 homeless persons showed that 35 were veterans. Construct a 90% confidence interval for the proportion of homeless persons who are veterans. Let z0.05 = 1.65. | (0.13, 0.22)

A random sample of 10 parking meters in a beach community showed the following incomes for a day. Assume the incomes are normally distributed. $6.30 $6.75 $4.25 $3.60 $4.50 $2.80 $8.00 $3.00 $2.60 $5.20 Find the 95% confidence interval for the true mean. | ($3.39, $6.01)

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviation different from the σ = 7.3 mg claimed by the manufacturer. Express the null hypothesis H 0 and the alternative hypothesis H 1 in symbolic form. | H0: σ =7.3 mg H1: σ ≠ 7.3 mg

A new apparatus has been devised to replace the needle in administering vaccines. The apparatus, which is connected to a large supply of vaccine, can be set to inject different amounts of the serum, but the variance in the amount of serum injected to a given person must not be greater than 0.05 to ensure proper inoculation. A random sample of 25 injections resulted in a variance of 0.118. What is a test statistic for the test H1: σ> 0.05. | 56.64

A recent study claimed that at least 17% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.01, determine the value of the test statistic to test the claim. | -0.35

The owner of a football team claims that the average attendance at games is over 67,000, and he is therefore justified in moving the team to a city with a larger stadium. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean attendance is at most 67,000, when it really is at most 67,000.

We consider salaries of 45 college graduates who took a statistics course in college. Based on these data we have a sample variance of $25,150. Find 99% upper confidence bound for σ2. Let and | 44,000

A manager wishes to estimate the proportion of parts in his inventory that are in proper working order. However, the sample size that he has been informed he will need exceeds his budget. Which of the following steps might he take to reduce the required sample size? | None of the others.

An economist is interested in studying the incomes of consumers in a particular region. The population standard deviation is known to be $1000. A random sample of 59 individuals resulted in an average income of $21000. What is the width of the 90% confidence interval? | $428.32

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

The owner of a football team claims that the average attendance at games is over 79,000, and he is therefore justified in moving the team to a city with a larger stadium. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ, the average attendance at games, is equal to 79,000 H1: μ, the average attendance at games, is greater than 79,000

You wish to test the claim that μ = 1200 at a level of significance of α = 0.01 andsample statistics are given n = 37, s =80, . Compute the value of the test statistic. Round your answer to two decimal places. | 0.53

The Hilbert Drug Store owner plans to survey a random sample of his customers with the objective of estimating the mean dollars spent on pharmaceutical products during the past three months. He has assumed that the population standard deviation is known to be $14.50. Given this information, what would be the required sample size if we want the total width of the two-side confidence interval on mean to be $4 at 95 percent confidence? | 202

You wish to test the claim that μ > 6 at a level of significance of α = 0.05. Let sample statistics be n = 60, s = 1.4. Compute the value of the test statistic. Round your answer to two decimal places. | 1.66

The State Transportation Department is interested in estimating the proportion of vehicle owners that are operating vehicles without the required liability insurance. If they wish to estimate the population proportion within ± 0.08 and use 96 percent confidence, what is the largest random sample that they will need? | About 165

The grade point averages for 10 randomly selected high school students are listed below and has mean of 2.54 and standard deviation of 1.11. 2.9 0.9 4.0 3.6 0.8 2.0 3.2 1.8 3.3 2.9 Assume the grade point averages are normally distributed. Find a 98% confidence interval for the true mean. | (1.55, 3.53)

You wish to test the claim that μ ≠ 17 at a level of significance of α = 0.05 and sample statistics are given n = 36, s = 2.5, . Compute the value of the test statistic. Round your answer to two decimal places. | -2.16

Find the critical value or values of based on the given information. H0: σ = 8.0/ H1: σ ≠ 8.0 n = 10 α = 0.1 | 16.92 and 3.33

A recent study claimed that at least 15% of junior high students are overweight. In a sample of 175 students, 28 were found to be overweight. At = 0.03, determine the critical values to test the claim. | 1.88

Assume that the data has a normal distribution and the number of observations is greater than fifty. Find the critical z value used to test a null hypothesis. α = 0.07 for a test H1: µ0. | 1.476

The fraction of defective integrated circuits produced in a photolithography process is being studied. A random sample of 200 circuits is tested, revealing 8 defectives. Find a 95% two-sided confidence interval on the fraction of defective circuits produced by this particular tool. | (0.013, 0.067)

A random sample of 15 students has a grade point average of 2.86 with a standard deviation of 0.78. Construct the confidence interval for the population mean at a significant level of 10% . Assume the population has a normal distribution. | (2.51, 3.21)

The principal of a middle school claims that test scores of the seventh-graders at her school vary less than the test scores of seventh-graders at a neighboring school, which have variation described by σ = 17.4. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: σ = 17.4 H1: σ < 17.4

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.004 gallons. A sample of 35 jugs was selected and the sample standard deviation was determined to be 0.0036 gallons. What is the value of test statistic for the test H1: < 0.004 | 27.54

Assume that the heights of men are normally distributed. A random sample of 19 men have a mean height of 65.5 inches and a standard deviation of 3.0 inches. Construct a 99% confidence interval for the population standard deviation, | (2.1, 5.1)

A university is interested in estimating the mean time that students spend at the student recreation center per week. A previous study indicated that the standard deviation in time is about 30 minutes per week. If the officials wish to estimate the mean time within 8 minutes with a 90 percent confidence, what should the sample size be? | 39

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A random sample of 60 suspension helmets used by motorcycle riders and automobile race-car drivers was subjected to an impact test, and on 15 of these helmets some damage was observed. Find a 95% two-sided confidence interval on the true proportion of helmets of this type that would show damage from this test. | (0.14, 0.36)

Determine the critical values to test the claim about the population proportion p ≠ 0.325 given n = 42 and Use . | 2.575 and -2.575

The world’s smallest mammal is the bumblebee bat. Such bats are roughly the size of a large bumblebee. A sample of the weights for 5 randomly selected bats has standard deviation of 0.33. Assume that the weights of the bats are normally distributed. Construct a 98% confidence interval of the standard deviation of weights for all such bats. Let and | (0.18; 1.21)

If a manager believes that the required sample size is too large for a situation in which she desires to estimate the mean income of blue collar workers in a state, which of the following would lead to a reduction in sample size? | All of the above.

Suppose that an internal report submitted to the managers at a bank in Boston showed that with 95% confidence, the proportion of the bank's customers who also have accounts at one or more other banks is between 0.40 and 0.46. Given this information, what sample size was used to arrive at this estimate? | Approximately 1,066

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A random sample of 4000 citizens yielded 2250 who are in favor of gun control legislation. Estimate the true proportion of all Americans who are in favor of gun control legislation using a 90% confidence interval. | (0.5496, 0.5754)

Find the test statistic t0 for a sample with n = 20, = 7.5, s = 1.9, and if H1: μ < 8.3. Round your answer to three decimal places. | -1.883

A researcher claims that the amounts of acetaminophen in a certain brand of cold tablets have a standard deviationless thanthe σ = 7.3 mg claimed by the manufacturer. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the standard deviation is at least 7.3 mg when it is actually less than 7.3 mg.

A researcher at a major hospital wishes to estimate the proportion of the adult population of the United States that has high blood pressure. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 5%? | 385

In a random sample of 120 computers, the mean repair cost was $55 with a population standard deviation of $12. Construct a 99% confidence interval for the population mean. | ($52, $58)

Carter Motor Company claims that its new sedan, the Libra, will average better than 27 miles per gallon in the city. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the mean is at most 27 miles per gallon when it really is at most 27 miles per gallon.

Find the test statistic t0 for a sample with n = 27, = 21, s = 3.3, and α = 0.005 if H1: μ > 20. Round your answer to three decimal places. | 1.575

Find the critical value or values of based on the given information. H1: σ < 26.1 n = 29 = 0.01 | 13.565

The mean replacement time for a random sample of 21 microwave ovens is 8.6 years with a standard deviation of 2.7 years. Construct the 98% confidence interval for the population variance, Assume the data are normally distributed | (3.9, 17.7)

Suppose you want to test the claim that μ > 28.6. Given a sample size of n = 62 and a level of significance of . When should you reject H0? | Reject H0 if the test statistic is greater than 2.05

Many people think that a national lobby's successful fight against gun control legislation is reflecting the will of a minority of Americans. A previous random sample of 4000 citizens yielded 2500 who are in favor of gun control legislation. How many citizens would need to be sampled if a 94% confidence interval was desired to estimate the true proportion to within 5%? | 332

A 99% confidence interval estimate can be interpreted to mean that (i) if all possible samples are taken and confidence interval estimates are developed, 99% of them would include the true population mean somewhere within their interval. (ii) we have 99% confidence that we have selected a sample whose interval does include the population mean. | Both of (i) and (ii)

A psychologist claims that more than13 percent of the population suffers from professional problems due to extreme shyness. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at most 13 percent when it is actually at most 13 percent.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 959. Sample data: n = 25, s = 25. The sample data appear to come from a normally distributed population with σ unknown. | Student t

The owner of a football team claims that the average attendance at games is over 727, and he is therefore justified in moving the team to a city with a larger stadium. Assuming that a hypothesis test of the claim has been conducted and that the conclusion isrejecting the null hypothesis, state the conclusion in nontechnical terms. | There is sufficient evidence to support the claim that the mean attendance is greater than than 727.

A manufacturer of golf equipment wishes to estimate the number of left-handed golfers. How large a sample is needed in order to be 95% confident that the sample proportion will not differ from the true proportion by more than 2%? A previous study indicates that the proportion of left-handed golfers is 15%. | 1225

A claim is made that the proportion of children who play sports is less than 0.5, and the sample statistics include n =1200 subjects with 40% saying that they play a sport. Find the value of the test statistic z using | -6.928

In order to efficiently bid on a contract, a contractor wants to be 99% confident that his error is less than two hours in estimating the average time it takes to install tile flooring. Previous contracts indicate that the standard deviation is 5 hours. How large a sample must be selected? Let z0.005 = 2.58. | 42

If you were constructing a 99% confidence interval of the population mean based on a sample of n = 12 where the standard deviation of the sample s = 3.25, the critical value of t will be | 3.1058

An article a Florida newspaper reported on the topics that teenagers most want to discuss with their parents. The findings, the results of a poll, showed that 46% would like more discussion about the family's financial situation, 37% would like to talk about school, and 30% would like to talk about religion. These and other percentages were based on a national sampling of 549 teenagers. Estimate the proportion of all teenagers who want more family discussions about school. Use a 99% confidence level. | (0.318, 0.422)

Construct a 99% confidence interval for the population mean, μ. Assume the population has a normal distribution. A group of 29 randomly selected students has a mean age of 20.4 years with a standard deviation of 3.5 years. | (18.6, 22.2)

The manufacturer of a refrigerator system for beer kegs produces refrigerators that are supposed to maintain a true mean temperature, μ, of 45°F, ideal for a certain type of German pilsner. The owner of the brewery does not agree with the refrigerator manufacturer, and claims he can prove that the true mean temperature is incorrect. Assume that a hypothesis test of the given claim will be conducted. Identify the type II error for the test. | The error of failing to reject the claim that the mean temperature equals 45°F when it is really different from 45°F.

Determine whether the given conditions justify testing a claim about a population mean μ. If so, what is formula for test statistic? The sample size is n = 49, σ = 12.3, s = 8.72and the original population is not normally distributed. | Yes, test statistic =

Carter Motor Company claims that its new sedan, the Libra, will average better than 70 miles per gallon in the city. Use μ, the true average mileage of the Libra. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: μ = 70 H1: μ >70

Find the critical value or values of based on the given information. H1: σ > 9.3 n = 18 = 0.05 | 27.587

Assume that the heights of women are normally distributed. A random sample of 35 women have a mean height of 62.5 inches and a standard deviation of 2.8 inches. Construct a 98% confidence interval for the population variance, | (4.8, 15.0)

A local men's clothing store is being sold. The buyers are trying to estimate the percentage of items that are outdated. They will randomly sample among its 100000 items in order to determine the proportion of merchandise that is outdated. The current owners have never determined their outdated percentage and can not help the buyers. Approximately how large a sample do the buyers need in order to insure that they are 94% confident that the error is within 1%? | 8836

Of 900 randomly selected cases of lung cancer, 360 resulted in death within five years. Construct a 95% two-sided confidence interval on the death rate from lung cancer. | (0.37, 0.43)

Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. A random sample of 24 fluorescent light bulbs has a mean life of 665 hours with a standard deviation of 24 hours. | (654.9, 675.1)

A manufacturer of electronic calculators is interested in estimating the fraction of defective units produced. A random sample of 1500 calculators contains 15 defectives. Compute a 99% upper-confidence bound on the fraction defective. Let z0.005 = 2.58 and z0.01 =2.33. | p ≤ 0.016

Construct a 96% confidence interval for the population mean, μ. Assume the population has a normal distribution. A study of 31 bowlers showed that their average score was 187 with a standard deviation of 8. | (183.9, 190.1)

Find the test statistic t0 for a sample with n = 15, = 7, s = 0.8, and ifH1: µ < 6.0. Round your answer to three decimal places. | 4.841

Find the critical value or values of based on the given information. H1: σ < 0.629 n = 21 = 0.025 | 9.591

Past experience indicates that the standard deviation in the time it takes for a "fast lube" operation to actually complete the lube and oil change for customers is 3.00 minutes. The manager wishes to estimate the mean time with 99% confidence and a total width of the two-side confidence interval on mean to be 1 minute. Given this, what must the sample size be? | About 239

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p =16% H1: p >16%

You wish to test the claim that μ ≤ 38 at a level of significance of α = 0.01 and are given sample statistics n = 43, s =4.7, . Compute the value of the test statistic. Round your answer to two decimal places. | 2.51

A pollster wishes to estimate the proportion of United States voters who favor capital punishment. How large a sample is needed in order to be 98% confident that the sample proportion will not differ from the true proportion by more than 4%? | 849

A random sample of 68 fluorescent light bulbs has a mean life of 600 hours with a population standard deviation of 25 hours. Construct a 95% confidence interval for the population mean. | (594.1, 605.9)

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student t distribution, or neither. Claim: μ = 119. Sample data: n = 45, s = 15.2. The sample data appear to come from a populationthat is not normally distributedwith unknown μ and | Normal

A sample of the grade point averages for 10 randomly selected students has mean of 6.7 and standard deviation of 1.0. Construct a 90% confidence interval for the population standard deviation, Assume the data are normally distributed. | (0.73, 1.65)

The quality control manager for a filling operation in a bottling plant is concerned with the variability in the volume of milk dispensed into gallon jugs. The filling process results in jugs whose volumes are normally distributed with a mean of 1.02 gallons. The process standard deviation should be less than 0.032 gallons. A sample of 42 jugs was selected and the sample standard deviation was determined to be 0.036 gallons. What is the value of test statistic for the test H1: < 0.032 | 51.89

Suppose a 95% confidence interval for μ turns out to be (1000, 1900). Give a definition of what it means to be "95% confident" in an inference. | In repeated sampling, 95% of the intervals constructed would contain the population mean.

An entomologist writes an article in a scientific journal which claims that fewer than21 infive thousand male fireflies are unable to produce light due to a genetic mutation. Use the parameter p, the true proportion of fireflies unable to produce light. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0: p = 0.0042 H1: p < 0.0042

In a recent study of 49 eighth graders, the mean number of hours per week that they watched television was 18.6 with a population standard deviation of 6.8 hours. Find the 95% confidence interval for the population mean. | (16.7, 20.5)

A Professor at Hanoi Medical University is interested in estimating the birth weight of infants. How large a sample must he select if he desires to be 99% confident that the true mean is within 0.1 kilograms of the sample mean? A past experience indicates that the standard deviation of the birth weights is known to be 0.7 kilograms. Let z0.005 = 2.58. | 327

Suppose you want to test the claim that μ ≠ 3.5. Given a sample size of n = 51 and a level of significance of. When should you reject H0 ? | Reject H0 if the test statistic is greater than 2.33 or less than -2.33

Find the critical value or values of based on the given information. H1: σ < 0.14 n = 25 = 0.10 | 15.66

A researcher claims that 26% of voters favor gun control.Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H0:p = 0.26 H1: p ≠ 0.26

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

Compute the critical value that corresponds to a 94% level of confidence. | 1.88

A sample of 28 teachers had mean annual earnings of $3450 with a standard deviation of $600. Construct a 95% confidence interval for the population mean, μ. Assume the population has a normal distribution. | ($3218, $3682)

A random sample of 169 students has a grade point average with a mean of 6.6 and with a population standard deviation of 0.8. Construct a 98% confidence interval for the population mean, μ. | (6.46, 6.74)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, Assume the data are normally distributed. | ($0.96, $1.79)

Construct a 95% confidence interval for the population standard deviation σ of a random sample of 25 men who have a mean weight of 170.4 pounds with a standard deviation of 10.3 pounds. Assume the population is normally distributed. | (8.0, 14.3)

A group of 55 bowlers showed that their average score was 190 with a population standard deviation of 8. Find the 99% confidence interval of the mean score of all bowlers. | (187.2, 192.8)

It is desired to estimate the average total compensation of CEOs in the Service industry. Data were randomly collected from 28 CEOs and the 99% confidence interval was calculated to be ($2,181,260, $5,836,180). Based on the interval above, do you believe the average total compensation of CEOs in the Service industry is less than $3,000,000? | I cannot conclude that the average is less than $3,000,000 at the 99% confidence level.

Find the test statistic t0 for a sample with n = 17, = 17.7, s = 2.4, and if H1: μ ≠ 17.9. Round your answer to three decimal places. | -0.344

An airline claims that the no-show rate for passengers is less than 3%. In a sample of 420 randomly selected reservations, 21 were no-shows. At = 0.01, compute the value of the test statistic to test the airline’s claim. | 2.4

Suppose a 99% confidence interval for population mean turns out to be (1500, 2200). To make more useful inferences from the data, it is desired to reduce the width of the confidence interval. Which of the following will result in a reduced interval width? | Both increase the sample size and decrease the confidence level.

The grade point averages for 11 randomly selected students in a statistics class are listed below. 2.4 3.2 1.8 1.9 2.9 4.0 3.3 0.9 3.6 0.8 2.2 What is the effect on the width of the confidence interval if the sample size is increased to 15? | The width decreases.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | c. 0.919

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | a. 3.857

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the slope of the regression line of hours on income? | c. 0.6337

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The table below shows the sales and profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether sales and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Positive correlation

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | b. 2 units

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

For the data in the table below, what is the value of the test statistic for testing x 15 21 16 30 y 67 80 85 78 | b. -0.38

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | b. None of the other choices is true

Consider a random sample of 27 observations of two variables X and Y. The following summary statistics are available: Σyi = 57.2,Σxi = 1253.4, = 73296.4, and Σxiyi = 3133.7. What is the y-intercept of the sample regression line? | c. 0.649

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | b. Positive correlation

Given a sample with r = 0.329, n = 30, and = 0.10, determine the test statistic to test the claim ρ = 0. Round answers to three decimal places | b. 1.844

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. negative correlation

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | e. = 21.11x+17.22

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | e. None of the other choices is true

The height y and base diameter x of five tree of a certain variety produced the following data x 2 2 3 5 y 30 40 90 100 Compute the correlation coefficient. | a. 0.873

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | b. student's t distribution.

Which of the following represents the strongest linear correlation? | c. -0.97

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | d. 0.019

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | a. 2.66

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | b. 4.761

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | d. = 9.341 + 0.243x

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | d. 0.07

Which of the following represents the strongest linear correlation? | a. -0.97

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | b. 0.897

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | b. -0.8

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | d. Reject H0

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A manufacturing company is interested in predicting the number of defects that will be produced each hour on the assembly line. The managers believe that there is a relationship between the defect rate and the production rate per hour. The managers believe that they can use production rate to predict the number of defects. The following data were collected for 10 randomly selected hours. Based on these sample data, which of the following is the regression equation? | d. = 5.67 + .048x.

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1150, = 1090.5. What is the y-intercept of the regression line of hours on income? | e. 23.46

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | b. the relationship between x and y is positive.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | d. It is +1.

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | c. 21.97

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | c. 0.0042

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing Mid-term, x 5 6 6 7.4 Final, y 5.2 4.6 7 7 | e. 0.07

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | b. No correlation

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | c. -0.642

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. negative correlation

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

Which of the following represents the strongest linear correlation? | d. -0.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1720.875, = 1050, = 1080.5. What is the error sum of squares? | e. 371.578

Assume that you are predicting Y from X. Which of the following correlation coefficients would yield predictions with the least error? | b. r = -0.85

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -5.96

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | c. 5.913

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | e. 3.26

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | b. = 0.5x +0.5

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | d. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | a. 0.81

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

Suppose that a random sample of 10,000 (X, Y) pairs yielded: = 10.4, se()= 21.2, se()= 2.4. What is the value of the test statistic for testing H0: ? | c. 0.019

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. No correlation

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | d. H0: ρ = 0 and H1: ρ < 0

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | c. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | d. -0.93

Assume that you are predicting X from Y. Which of the following correlation coefficients would yield predictions with the most error? | d. r = 0.14

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 100 90 What is the value of the test statistic for testing | e. 1.46

For the data in the table below, find the equation of the regression line of y on x. x 0 1 2 1 y 0 0 1 3 | e. = 0.5x +0.5

Which of the following statements is true regarding the coefficient of correlation? | b. All of the others

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | d. -0.23

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | b. 2.06

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | d. student's t distribution.

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | b. no correlation

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

Find the value of the linear correlation coefficient r. x 85.3 78.3 80.6 95.8 y 12.2 15.1 19.4 17.4 | a. 0.07

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | d. 3.857

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. Positive correlation

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | d. 0.81

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | b. 3.63

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | c. the relationship between x and y is positive.

An indication ofno linear relationship between two variables would be a: | c. coefficient of correlation of 0

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A sample of10 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 15210, = 17150, = 2599. What is the value of the coefficient of determination? | a. None of the other choices is true

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | d. 12.97

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

The general manager of a chain of furniture stores believes that experience is the most important factor in determining the level of success of a salesperson. To examine this belief she records last month's sales and the years of experience of 8 randomly selected salespeople. These data are listed below. Years of Experience 0 2 7 4 9 5 5 8 Sales 7 7.7 15 8.5 15 7 8 12 Determine the correlation coefficient. | e. 0.81

Suppose we have the following information from a simple regression: = 107.4, = -14.30, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -5.96

For a group of English students at the local junior college, the scatter diagram compares the number of incorrect answers on a test they took (y) and the length of the pencil used to take the test (x). State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | a. No correlation

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | d. 2 units

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | a. 30

An indication of no linear relationship between two variables would be a: | c. coefficient of correlation of 0

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | d. 2.66

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are shown below. Test 1 7.5 6.4 6.6 5.8 8.3 Test 2 6.7 6.6 7.2 4.0 6.7 Find the value of the linear correlation coefficient r. | e. 0.58

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | d. -0.8

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | e. -1.071

A mail-order firm is interested in estimating the number of order that need to be processed on a given day from the weight of the mail received. A close monitoring of the mail on 4 randomly selected business days produced the results below. Find the equation of the least squares regression line relating the number of orders to the weight of the mail. Mail: x (pounds) 10 12 13 17 Orders: y 8 10 6 10 | b. = 5.5 + 0.23x

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | d. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | c. 2.06

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | a. Positive correlation

In a simple linear model, testing H0 : = 0 is the same as testing: | b. H0: β1 = 0

A company keeps extensive records on its new salespeople on the premise that sales should increase with experience. A random sample of seven new salespeople produced the data on experience and sales shown in the table. Months on job, x 2 12 5 9 7 Monthly sales, y 2.4 15.0 3.5 11.0 10.5 Find the value of the coefficient of correlation. | e. 0.96

Given the size of a human’s brain, x, and their score on an IQ test, y, would you expect a positive correlation, a negative correlation, or no correlation? | c. no correlation

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | b. 1.688

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | b. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Consider a random sample of 20 observations of two variables X and Y. The following summary statistics are available: Σyi = 12.75,Σxi = 1478, = 143,215.8, and Σxiyi = 1083.67. What is the slope of the sample regression line? | a. 0.0042

You want to explore the relationship between the grades students receive on their first two exams. For a sample of 17 students, you find a correlation coefficient of 0.47. What is the value of the test statistic for testing H0: ρ = 0 vs. H1: ρ 0 ? | a. 2.06

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | a. = 21.11x+17.22

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | c. 0.026

For several customers at the local bookstore, the scatter diagram compares the weight of their books (y) and the number of pages in them(x) is shown below. State whether there is no correlation, a positive correlation, or a negative correlation between the x and y variables. | c. Positive correlation

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | c. 0.73

Suppose you are interested in determining the relationship between the temperatures (x) on days during a summer class and the number of absences on those days (y). For a sample of 9 observations, you have the following information: Σxi = 196, Σyi = 131.7, Σxiyi = 2001.4, Σ(xi)2 = 702.3, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 9.341 + 0.243x

Given a sample with r = 0.833, n = 12, and = 0.05, determine the test statistic t0 necessary to test the claim ρ = 0. Round answers to three decimal places. | c. 4.761

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | a. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | e. 3.63

Which of the following statements is true regarding the coefficient of correlation? | c. All of the others

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | d. 641.164

A manager wishes to determine the relationship between the number of miles (in hundreds of miles) the Manager’s sales representatives travel per month and the amount of sales (in thousands of dollars) per month. Miles traveled, x 4 8 10 Sales, y 27 58 61 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 3.857

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | a. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

Given the equation of a regression line is = 4x - 6, what is the best predicted value for y given x = 9? Assume that the variables x and y have a significant correlation. | b. 30

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. What is the sample correlation coefficient between X and Y? | b. -0.76

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | b. Reject H0

Two separate tests are designed to measure a student's ability to solve problems. Several students are randomly selected to take both tests and the results are shown below. Test 1 7.5 6.4 6.6 5.8 8.3 Test 2 6.7 6.6 7.2 4.0 6.7 Find the value of the linear correlation coefficient r. | d. 0.58

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | d. 0.026

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | b. 0.6084

For a sample of 45 observations, you have the following information: Σxi = 153.7, Σyi = 231.2, Σxiyi = 712.5, Σ(xi)2 = 718, Σ(yi)2 = 1775.2. What is the sample correlation coefficient between X and Y? | a. -0.23

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | c. Negative correlation

If a sample of n = 40 people is selected and the sample correlation between two variables is r = 0.468, what is the test statistic value for testing whether the true population correlation coefficient is equal to zero? | d. 3.26

Given the least squares regression line = -2.88- 1.77x and a coefficient of determination of 0.64, the coefficient of correlation is: | c. -0.8

Let t0.025,18 = 2.1, t0.05,18 = 1.73 and t0.025,19 = 2.09. | a. 3.63

In a simple linear model, testing H0 : = 0 is the same as testing: | a. H0: β1 = 0

An actuary wanted to develop a model to predict how long individuals will live. After consulting a number of physicians, he collected the age at death (y), the average number of hours of exercise per week (x). A random sample of 7 individuals was selected and the results are shown below. x 7 8 6 7 12 12 3 y 85 80 75 79 82 79 80 Determine the correlation coefficient. | c. 0.17

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: = 324, = 393, = 1820.875, = 1150, = 1080.5. What is the regression sum of squares? | c. 641.164

Assume that you are predicting X from Y. Which of the following correlation coefficients would yield predictions with the most error? | c. r = 0.14

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | b. Negative correlation

You want to explore the relationship between the scores students receive on their first quiz and their first exam. You believe that there is anegative correlation between the two scores. What are the most appropriate null and alternative hypotheses regarding the population correlation? | a. H0: ρ = 0 and H1: ρ < 0

You want to explore the relationship between the grades students receive on their first quiz (X) and their first exam (Y). The first quiz and test scores for a sample of 11 students reveal the following summary statistics: = 330.5, sx = 2.03, and sy = 17.91 What is the sample correlation coefficient? | a. 0.909

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

Given the supply of a commodity, x, and the price of a commodity, y, would you expect a positive correlation, a negative correlation, or no correlation? | a. negative correlation

Assume that we found out the regression equation = 1.6 +x corresponding to the data below x 0 1 2 4 5 y 1 2 4 5 7 Find the error sum of square SSE. | e. 0.919

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | a. Coefficient of correlation is 0.0.

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | c. 2.66

The height y and base diameter x of five tree of a certain variety produced the following data x 2 4 3 4 y 33 41 96 90 What is the value of the test statistic for testing | b. 0.026

An insurance company analyst is interested in analyzing the dollar value of damage in automobile accidents. She collects data from 115 accidents, and records the amount of damage as well as the age of the driver. The results of her regression analysis are listed below. On average, what would be the dollar value of an accident involving a 30-year-old driver? | a. $12,824.722

A simple regression model has the form: = 10 + 2x. As x increases by one unit, then the value of y will increase by: | c. 2 units

In a regression problem the following pairs of (x, y) are given: (-4, 8), (-1, 2), (0, 0), (1, -2) and (4, -8). What does this indicate about the value of coefficient of determination? | a. It is +1.

If the coefficient of correlation is 0.78, what does the coefficient of determination equal? | a. 0.6084

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | c. -1.071

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

Suppose you are interested in determining the relationship between the number of absences (x) and the final grades (y) of students from a statistics class. For a sample of 9 observations, you have the following information: Σxi = 217, Σyi = 131.7, Σxiyi = 1932.5, Σ(xi)2 = 689, Σ(yi)2 = 1321.5. Find the sample regression line. | c. = 8.027 + 0.274x

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | d. 1.688

We can show that, when the null hypothesis H0: ρ = 0 is true and the random variables have a joint normal distribution, then the random variable which is used to test the hypothesis that there is no linear association in the population between a pair of random variables, follows the: | a. student's t distribution.

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | a. -0.93

The data below are the gestation periods, in months, of randomly selected animals and their corresponding life spans, in years. Use the regression equation to predict the life span, y, for a gestation period of 6 months, x. Assume the variables x and y have a significant correlation. Gestation, x 8 2.1 3.8 Life span, y 30 12 10 | d. 21.97

The table below shows the times (in hours) that seven students spend watching television and using the Internet. Construct a scatter diagram for the data and state whether these times have no correlation, a positive correlation, or a negative correlation. | c. Positive correlation

In simple linear regression, which of the following statements indicates there is no linear relationship between the variables x and y? | b. Coefficient of correlation is 0.0.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | e. 0.73

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: = 50,000 + 6x. This implies that: | b. an increase of $1 in advertising is expected to result in an increase of $6000 in sales.

If the least squares equation is = 10 + 8X, then the value of8 (the coefficient of x)indicates: | a. for each unit increase in X, Y increases on average by 8.

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. Age, x 42 45 49 Pressure, y 118 122 125 Calculate the test statistic to test the claim ρ = 0. Round answers to three decimal places. | b. 5.913

Suppose we have the following information from a simple regression: = 117.4, = -17.29, n = 300, = 4.3, SST = 17000, and SSE = 10000. What is the correlation coefficient? | e. -0.642

For a random sample of 263 professionals, the correlation between their age and their income was found to be 0.17. You are interested in testing the null hypothesis that there is no linear relationship between these two variables against the alternative that there is a positive relationship. What is your conclusion in testing H0: ρ = 0 vs. H1: ρ > 0 at = 0.01? | c. Reject H0

Suppose we have the following information from a simple regression: = 107.4, = -14.39, se()= 2.8, se()= 2.4, n = 200. What is the value of the test statistic for testing H0: ? | d. -1.071

A recent study of 60 shoppers showed that the correlation between the time spent in the store and the dollars spent was 0.235. Using a significance level equal to 0.01, the critical value for the test to determine whether the true population correlation coefficient is zero is: | e. 2.66

Identify the choice that best completes the statement Given the least squares regression line = 12.31 + 0.03 x: | a. the relationship between x and y is positive.

The height y and base diameter x of five tree of a certain variety produced the following data x 1 2 2 5 y 30 40 90 120 Find the equation of the estimated regression line of y on x. | d. = 21.11x+17.22

Suppose we have the following information from a simple regression: n = 15, = 301.5, = 385.7, = 1719.8, = 1200.9, = 1090.5. What is the y-intercept of the regression line of hours on income? | b. 12.97

For a sample of 10 observations, you have the following information: Σxi = 253, Σyi = 172.2, Σxiyi = 643.4, Σ(xi)2 = 696, Σ(yi)2 = 152.2. What is the sample correlation coefficient between X and Y? | c. -0.93

Recently, an automobile insurance company performed a study of a random sample of 38 of its customers to determine if there is a positive relationship between the number of miles driven and the age of the driver. The sample correlation coefficient is r = 0.59. Given this information, which of the following is appropriate critical value for testing the null hypothesis at an alpha = 0.05 level? | e. 1.688

Consider the following pairs of observations: x 2 3 5 5 7 6 y 1.3 1.5 2.2 2.3 2.7 1.9 Find the value of the coefficient of correlation. | d. 0.897

The table below shows the legal costs and the profits of a company from 2000 to 2005. Construct a scatter diagram for the data and state whether legal costs and profits for this company have no correlation, a positive correlation, or a negative correlation for this period. | d. Negative correlation

The weight and systolic blood pressure of 4 randomly selected males in the age group 25 to 30 are shown in the following table. Assume that weight and blood pressure are jointly normally distributed. Weight, x 50 62 67 55 Pressure, y 90 110 120 90 What is the value of the test statistic for testing | c. -0.44

The manager of a used-car dealership is very interested in the resale price of used cars. The manager feels that the age of the car is important in determining the resale value. He collects data on the age and resale value of 15 cars and runs a regression analysis with the value of the car (in thousands of dollars) as the dependent variable and the age of the car (in years) as the independent variable. Unfortunately, he spilled his coffee on the printout and lost some of the results. The partial results left are displayed below. Multiple R 0.557 R Square "A" Adjusted R Square 0.133 Standard error "B" Observations 15000 What is the value of "A"? | b. 0.310

In a sample of 25 randomly selected women, it was found that their mean height was 65.2 inches. From previous studies, it is assumed that the standard deviation, \sigma, is 2.4. Construct the 95% confidence interval for the population mean. | (64.3, 66.1)

A local bank needs information concerning the checking account balances of its customers. A random sample of 18 accounts was checked. The mean balance was $600.70 with a standard deviation of $196.20. Find a 98% confidence interval for the true mean. Assume that the account balances are normally distributed. | ($481.85, $719.55)

A student randomly selects 22 CDs at a store. The mean is $8.5 with a standard deviation of $1.25. Construct a 95% confidence interval for the population standard deviation, \sigma. Assume the data are normally distributed. | ($0.96, $1.79)

A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 95% confident that the true mean is within 4 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces. | 12

A confidence interval was used to estimate the proportion of statistics students that are females. A random sample of 200 statistics students generated the following 90% confidence interval: (0.48, 0.64). Based on the interval above, is the population proportion of females equal to 0.60? | Maybe. 0.60 is a believable value of the population proportion based on the information above.

A private opinion poll is conducted for a politician to determine what proportion of the population favors decriminalizing marijuana possession. How large a sample is needed in order to be 97% confident that the sample proportion will not differ from the true proportion by more than 7%? | 241

A psychologist claims that more than 16 percent of the population suffers from professional problems due to extreme shyness. Use p, the true percentage of the population that suffers from extreme shyness. Express the null hypothesis H0 and the alternative hypothesis H1 in symbolic form. | H1: p >16%

Find the test statistic t0 for a sample with n = 12, = 30.2, s = 2.2, and α = 0.01 if H0 : µ = 28. Round your answer to three decimal places. | 3.464

A skeptical paranormal researcher claims that the proportion of Americans that have seen a UFO, p, is less than 1 in every one thousand. Assume that a hypothesis test of the given claim will be conducted. Identify the type I error for the test. | The error of rejecting the claim that the true proportion is at least 1 in one thousand when it really is at least 1 in one thousand.

The following table gives the total sales (revenue) and profits for 8 retailers. Construct a scatter diagram for the data and state whether sales and profits for these companies have no correlation, a positive correlation, or a negative correlation. | Positive correlation

A regression analysis between sales (in $1000) and advertising (in $) resulted in the following least squares line: \hat y = 50,000 + 7x. This implies that: | an increase of $1 in advertising is expected to result in an increase of $7000 in sales.

The table contains the weights and heights of nine randomly selected adults. Compute the correlation coefficient. | 0.73

Suppose that you are interested in the relationship between the return on a stock this year (Y), compared to the return the year before (X). From a sample of 12 firms, you have collected the following information: | -0.76

A sample of 8 households was asked about their monthly income (X) and the number of hours they spend connected to the internet each month (Y). The data yield the following statistics: | 23.46

The data below are the ages and systolic blood pressures (measured in millimeters of mercury) of 3 randomly selected adults. | 5.913

The data below are the exam scores of 4 randomly selected statistics students, what is the value of the test statistic for testing H\_0:\beta\_0=1 | 0.07

A group of 65 randomly selected students has a mean age of 20.5 years with a population standard deviation of 2.7. Construct a 98% confidence interval for the population mean. | (19.7, 21.3)

Based on this percentage, what is the probability that more than 50 males who have used marijuana for samples of size 120? | 0.717

the mathematical science that deals with the collection, analysis, and presentation of data data that can then be used as a basis for inference and induction | Statistics

statistics applied to the business world in an effort to improve people's decision making in fields such as marketing, operations, finance, and human resources | Business Statistics

derived from facts for the purpose of making decisions | information

represents all possible subjects of interest | population

a subset of a population | sample

data that describe a characteristic about a sample | statistics

data that describe a characteristic about a population. values calculated using population | parameters

data use descriptive terms to measure or classify something of interest | Qualitative

Apple's closing stock price today is an example of... | Quantitative Data

Which levels of measurement are considered quantitative data? | interval and ratio

A method of gathering data while the subjects of interest are in their natural environment, the advantages of this are that the subjects are not likely to be influenced by the data collection process | observation

A couple has six children whose ages are 6, 8, 10, 12, 14, and 16 Find the variance in ages | 11,67

Use the confidence level and sample data to find a confidence interval for estimating the population µ. A random sample of 94 light bulbs had a mean life of X = 587 hours with a standard deviation of s = 36 hours. Construct a 90 percent confidence interval for the mean life, µ, of all light bulbs of this type. | (581,593)

# Is Event B dependent or independent of Event A? A: A green ball is drawn from a box with five balls and placed next to the box. B: A red ball is drawn next and placed next to the green one. | dependent

**The time to failure (in hours) for a laser in a cytometry machine is modeled by an exponential distribution with λ = 0 00004. Find the probability that the laser will last at least 20000 hours | 0.45**

*The random Variable X has a binomial distribution with n=10 and p= 0.5. Which in the following statements is True? P(X=5) = 0.2461 , P (X <=2) = 0.0547 , P (X >=9) = 0.0107 | All of the them*

*A class in advanced physics is comprised of 10 juniors, 30 seniors and 10 graduate students. The final grades showed that 3 of the juniors , 10 of the seniors and 5 of the graduate students received an "A " for the course. If a student is chosen at random from this class and is found to have earned an A, What is the probability that he or she is a senior? |* **5/9**

n perfectly symmetrical distributions, which of the following is NOT a correct statement? | The distance from Q 1 is the same as the distance from Q 2 is half of the distance from the smallest to the largest observation.

*You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black. | 0.245*

The age distribution of students at a community college is given below. Age (years) Number of students

Under 21 410 21-24 404 25-28 276 29-32 155 33-36 97 37-40 63 Over 40 86 A student from the community college is selected at random. Find the probability that the student is 25 years or over. Give your answer as a decimal rounded to three decimal places. | 0.454