

## Take Test: Module 01 Week 2 Paper & Pencil Assignment

### Test Information

Description This first paper and pencil assignment covers basic concepts in statistics including:

- types of statistics e.g. descriptive versus inferential
- data types
- simple statistical calculations such as the mean, variance, etc.
- simple graphical statistics such as histograms and boxplots

Instructions This assignment contains a variety of types of questions such as multiple choice, fill in the blank and true/false. You might want to go through and answer all the questions on paper first using the Word doc provided, then open and enter your answers to the online questions. You will have two tries to answer the questions for this assignment.

Multiple Attempts This test allows 2 attempts. This is attempt number 1.

Force Completion This test can be saved and resumed later.

Your answers are saved automatically.

### Question Completion Status:

#### QUESTION 1

2 points Save Answer

The sample space for a six-sided die is:

- S = {2, 4, 6}
- S = {1, 2, 3, 4, 5, 6}
- S = {1, 3, 5}
- S = {0, 1, 2, 3, 4, 5}

#### QUESTION 2

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

Event F = the outcome is four. That is,  $4 \in S$   $P(F) = \underline{\hspace{2cm}}$ . Enter your answer rounded to two decimal places.

#### QUESTION 3

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

Event A = the outcome is an odd number. Enter your answer rounded to two decimal places.

#### QUESTION 4

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

Event B = the outcome is less than 5 (five). Enter your answer rounded to two decimal places.

#### QUESTION 5

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

The event is the complement of Event B. Enter your answer rounded to two decimal places.

#### QUESTION 6

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

What is the probability of the event  $(A \mid B)$ . Enter your answer rounded to two decimal places.

#### QUESTION 7

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

What is the probability of the event  $(B \mid A)$ . Enter your answer rounded to two decimal places.

#### QUESTION 8

2 points Save Answer

Given the specified subset of S, compute the subset's probability.

What is the probability of the event  $(A \cap B)$ . Enter your answer rounded to two decimal places.

**QUESTION 9**

2 points

Save Answer

Given the specified subset of  $S$ , compute the subset's probability.

What is the probability of the event  $(B \cup A)$ . Enter your answer rounded to two decimal places.

**QUESTION 10**

2 points

Save Answer

Given the specified subset of  $S$ , compute the subset's probability.

The event is the complement of Event H = the outcome is 7 (seven). Enter your answer rounded to two decimal places.

**QUESTION 11**

2 points

Save Answer

Let Event D = a student is taking a data analytics class and let Event E = the student is taking an economics class. Suppose  $P(D) = 0.20$  and  $P(E) = 0.36$  and  $P(D \cap E) = 0.072$ .

Are D and E independent? Enter "yes" or "no".

**QUESTION 12**

5 points

Save Answer

Whether a customer at a carry-out restaurant leaves a tip is a random variable. The probability that a customer leaves a tip is 0.42. The probability that one customer leaves a tip is independent of whether another customer leaves a tip. Let leaving a tip represent a "success" and not leaving a tip represent a "failure."

Does this problem describe a discrete or continuous random variable? Enter "discrete" or "continuous".

**QUESTION 13**

5 points

Save Answer

Whether a customer at a carry-out restaurant leaves a tip is a random variable. The probability that a customer leaves a tip is 0.42. The probability that one customer leaves a tip is independent of whether another customer leaves a tip. Let leaving a tip represent a "success" and not leaving a tip represent a "failure."

What kind probability distribution fits the random variable described in this problem? Enter "binomial", "Poisson", "Gaussian", etc. to fill in the blank. Enter your response in all lower case letters unless it is a proper name.

**QUESTION 14**

5 points

Save Answer

Whether a customer at a carry-out restaurant leaves a tip is a random variable. The probability that a customer leaves a tip is 0.42. The probability that one customer leaves a tip is independent of whether another customer leaves a tip. Let leaving a tip represent a "success" and not leaving a tip represent a "failure."

What is the probability that a customer does not leave a tip? Enter your answer rounded to two decimal places.

**QUESTION 15**

6 points

Save Answer

Whether a customer at a carry-out restaurant leaves a tip is a random variable. The probability that a customer leaves a tip is 0.42. The probability that one customer leaves a tip is independent of whether another customer leaves a tip. Let leaving a tip represent a "success" and not leaving a tip represent a "failure."

Calculate the mean of this distribution. Assume that you want a 95% probability of getting a tip.

**QUESTION 16**

5 points

Save Answer

Whether a customer at a carry-out restaurant leaves a tip is a random variable. The probability that a customer leaves a tip is 0.42. The probability that one customer leaves a tip is independent of whether another customer leaves a tip. Let leaving a tip represent a "success" and not leaving a tip represent a "failure."

Calculate the variance of this distribution. Use the information you got in the previous question, i.e. use a 95% probability of getting a tip and the value for n you computed in Q15.

**QUESTION 17**

4 points

Save Answer

The number of pieces of mail a household receives on a given day follows a Poisson distribution. On average, eight pieces of mail are received each day.

Does this problem describe a discrete or continuous random variable? Enter "discrete", "continuous", etc. in all lower case letters for your answer.

**QUESTION 18**

5 points

Save Answer

The number of pieces of mail a household receives on a given day follows a Poisson distribution. On average, eight pieces of mail are received each day.

Calculate the average or mean of this distribution. Enter your answer rounded to two decimal places. If you need to use trailing zeros to put both decimal places.

**QUESTION 19**

4 points

Save Answer

The number of pieces of mail a household receives on a given day follows a Poisson distribution. On average, eight pieces of mail are received each day. Calculate the variance of this distribution. Enter your answer rounded to two decimal places. If you need to, add trailing zeros to get both decimal places.

**QUESTION 20**

5 points

Save Answer

The number of pieces of mail a household receives on a given day follows a Poisson distribution. On average, eight pieces of mail are received each day. What is the probability that a household receives 10 pieces of mail on a given day? Enter your answer rounded to two decimal places. If you need to, add trailing zeros to get both decimal places.

**QUESTION 21**

4 points

Save Answer

The number of pieces of mail a household receives on a given day follows a Poisson distribution. On average, eight pieces of mail are received each day. What is the probability that a household receives 5 pieces of mail on a given day? Enter your answer rounded to two decimal places, etc.

**QUESTION 22**

4 points

Save Answer

Let  $X$  = number of miles a family travels for summer vacation.  $X$  follows a normal distribution with a mean of 311 miles and standard deviation of 232 miles.

If a family traveled 600 miles, how many standard deviations are they away from the mean? (HINT!!! Check this week's lecture slides to see how to solve this question.)

**QUESTION 23**

4 points

Save Answer

Let  $X$  = number of miles a family travels for summer vacation.  $X$  follows a normal distribution with a mean of 311 miles and standard deviation of 232 miles.

Calculate  $P(X < 600)$ . Enter your answer rounded to two decimal places.

**QUESTION 24**

4 points

Save Answer

Let  $X$  = number of miles a family travels for summer vacation.  $X$  follows a normal distribution with a mean of 311 miles and standard deviation of 232 miles.

Calculate  $P(X > 600)$ . Enter your answer rounded to two decimal places.

**QUESTION 25**

4 points

Save Answer

Suppose the random variable  $X$  has a mean of 30 and standard deviation of 6. Samples of 20 observations are drawn randomly from the population.

Calculate the standard deviation for the random variable  $\bar{X}$ .

**QUESTION 26**

4 points

Save Answer

Suppose the random variable  $X$  has a mean of 30 and standard deviation of 6. Samples of 20 observations are drawn randomly from the population.

Calculate the probability that the sample mean is between 26 and 33.

**QUESTION 27**

4 points

Save Answer

The following table describes the distribution of a sample  $S$  of 600 individuals, organized by region of residence and political party affiliation:

	Democrat	Republican	Independent
East	163	121	52
West	108	141	15

Let  $D$  = the individual is a democrat, let  $R$  = the individual is a republican, let  $I$  = the individual is an independent, let  $E$  = the individual lives in the east, and let  $W$  = the individual lives in the west. Compute  $P(D)$ . Enter your answer rounded to two decimal places.

**QUESTION 28**

2 points

Save Answer

The following table describes the distribution of a sample  $S$  of 600 individuals, organized by region of residence and political party affiliation:

	Democrat	Republican	Independent
East	163	121	52
West	108	141	15

Let  $D$  = the individual is a democrat, let  $R$  = the individual is a republican, let  $I$  = the individual is an independent, let  $E$  = the individual lives in the east, and let  $W$  = the individual lives in the west. Compute  $P(R \cap E)$ . Enter your answer rounded to two decimal places.

**QUESTION 29**

2 points

Save Answer

The following table describes the distribution of a sample  $S$  of 600 individuals, organized by region of residence and political party affiliation:

	Democrat	Republican	Independent
East	163	121	52
West	108	141	15

Let  $D$  = the individual is a democrat, let  $R$  = the individual is a republican, let  $I$  = the individual is an independent, let  $E$  = the individual lives in the east, and let  $W$  = the individual lives in the west. Compute  $P(E \cup W)$ . Enter your answer rounded to two decimal places. Remember that if you need to, add trailing zeros to get both decimal places filled.

**QUESTION 30**

2 points

Save Answer

The following table describes the distribution of a sample  $S$  of 600 individuals, organized by region of residence and political party affiliation:

	Democrat	Republican	Independent
East	163	121	52
West	108	141	15

Let  $D$  = the individual is a democrat, let  $R$  = the individual is a republican, let  $I$  = the individual is an independent, let  $E$  = the individual lives in the east, and let  $W$  = the individual lives in the west. Compute  $P(W | R)$ . Enter your answer rounded to two decimal places.

Click Save and Submit to save and submit. Click Save All Answers to save all answers.

Save All Answers

Save and Submit