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# QUANTITATIVE METHODS – 60 PRACTICE QUESTIONS

# Question #1

A random variable that has a countable number of possible values is called a:

1. probability distribution.
2. discrete random variable.
3. continuous random variable.

# Question #2

An annuity will pay eight annual payments of $100, with the first payment to be received three years from now. If the interest rate is 12% per year, what is the present value of this annuity? The present value of:

1. an ordinary annuity of 8 periods at 12%.
2. a lump sum discounted for 2 years, where the lump sum is the present value of an ordinary annuity of 8 periods at 12%.
3. a lump sum discounted for 3 years, where the lump sum is the present value of an ordinary annuity of 8 periods at 12%.

# Question #3

A portfolio is equally invested in Stock A, with an expected return of 6%, and Stock B, with an expected return of 10%, and a risk-free asset with a return of 5%. The expected return on the portfolio is:

1. 8.0%.
2. 7.4%.
3. 7.0%.

# Question #4

The holding period yield of a T-bill that has a bank discount yield of 4.70% and a money market yield of 4.86% and matures in 240 days is *closest to:*

1. 2.8%.
2. 4.9%.
3. 3.2%.

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The First State Bank is willing to lend $100,000 for 4 years at a 12% rate of interest, with the loan to be repaid in equal semi-annual payments. Given the payments are to be made at the end of each 6-month period, how much will each loan payment be?

1. $32,925.
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# Question #6

Which of the following is the *best* method to avoid data mining bias when testing a profitable trading strategy?

1. Increase the sample size to at least 30 observations per year.
2. Use a sample free of survivorship bias.
3. Test the strategy on a different data set than the one used to develop the rules.

# Question #7

The number of ships in the harbor is an example of what kind of variable?

1. Indiscrete.
2. Discrete.
3. Continuous.

# Question #8

Given rates of return on an index for the past 10 years, the arithmetic mean of these returns is:

1. statistically the best estimator of the compound annual rate of return over multiple periods.
2. the compound annual rate of return that would have resulted in the same change in wealth as the actual rates of return in the past years.
3. statistically the best estimator of the next year's rate of return.

# Question #9

Jack Smith, CFA, is analyzing independent investment projects X and Y. Smith has calculated the net present value (NPV) and internal rate of return (IRR) for each project: Project X: NPV = $250; IRR = 15%

Project Y: NPV = $5,000; IRR = 8%

Smith should make which of the following recommendations concerning the two projects?

1. Accept Project X only.
2. Accept both projects.
3. Accept Project Y only.

# Question #10

An investor will receive an annuity of $5,000 a year for seven years. The first payment is to be received 5 years from today. If the annual interest rate is 11.5%, what is the present value of the annuity?

1. $15,000.
2. $23,185.
3. $13,453.

# Question #11

A grant writer for a local school district is trying to justify an application for funding an after-school program for low-income families. Census information for the school district shows an average household income of $26,200 with a standard deviation of $8,960. Assuming that the household income is normally distributed, what is the percentage of households in the school district with incomes of less than $12,000?

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# Question #12

A statistical estimator is unbiased if:

1. the variance of its sampling distribution is smaller than that of all other estimators.
2. an increase in sample size decreases the standard error.
3. the expected value of the estimator is equal to the population parameter.

# Question #13

Use the results from the following survey of 500 firms to answer the question.

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| **Number of Employees** | **Frequency** |
| 300 up to 400 | 40 |
| 400 up to 500 | 62 |
| 500 up to 600 | 78 |
| 600 up to 700 | 101 |
| 700 up to 800 | 131 |
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The frequency of the third class is:

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# Question #14

The mean return of a portfolio is 20% and its standard deviation is 4%. The returns are normally distributed. Which of the following statements about this distribution are *least* accurate? The probability of receiving a return:

1. of less than 12% is 0.025.
2. between 12% and 28% is 0.95.
3. in excess of 16% is 0.16.

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An analyst announces that an increase in the discount rate next quarter will double her earnings forecast for a firm. This is an example of a:

1. use of Bayes' formula.
2. joint probability.
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It will cost $20,000 a year for four years when an 8-year old child is ready for college. How much should be invested today if the child will make the first of four annual withdrawals 10-years from today? The expected rate of return is 8%.

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# Question #18

Sarah Kelley, CFA, is analyzing two mutually exclusive investment projects. Kelley has calculated the net present value (NPV) and internal rate of return (IRR) for each project:

Project 1: NPV = $230; IRR = 15%

Project 2: NPV = $4,000; IRR = 6%

Kelley should make which of the following recommendations concerning the two projects?

1. Accept Project 2 only.
2. Accept Project 1 only.
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# Question #19

If an investor bought a stock for $32 and sold it one year later for $37.50 after receiving $2 in dividends, what was the holding period return on this investment?

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For the task of arranging a given number of items without any sub-groups, this would require:

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2. only the factorial function.
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How much would the following income stream be worth assuming a 12% discount rate?

* $100 received today.
* $200 received 1 year from today.
* $400 received 2 years from today.
* $300 received 3 years from today.

1. $721.32.
2. $810.98.
3. $1,112.44.

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A Treasury bill (T-bill) with a face value of $10,000 and 219 days until maturity is selling for 97.375% of face value. Which of the following is *closest* to the holding period yield on the T-bill if held until maturity?

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2. 2.81%.
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# Question #24

A major brokerage house is currently selling an investment product that offers an 8% rate of return, compounded monthly. Based on this information, it follows that this investment has:

1. a periodic interest rate of 0.667%.
2. a stated rate of 0.830%.
3. an effective annual rate of 8.00%.

# Question #25

A sample of five numbers drawn from a population is (5, 2, 4, 5, 4). Which of the following statements concerning this sample is *most* accurate?

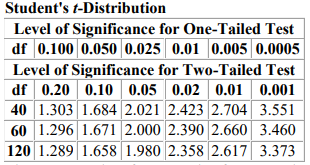
1. The sampling error of the sample is equal to the standard error of the sample.
2. The variance of the sample is: ∑(x1 − mean of the sample)2 / (n − 1) = 1.5.
3. The mean of the sample is ∑X / (n − 1) = 5.

# Question #26

From a population of 5,000 observations, a sample of n = 100 is selected. Calculate the standard error of the sample mean if the population standard deviation is 50.

1. 50.00.
2. 4.48.
3. 5.00.

# Question #27



The average salary for a sample of 61 CFA charterholders with 10 years’ experience is $200,000, and the sample standard deviation is $80,000. Assume the population is normally distributed. Which of the following is a 99% confidence interval for the population mean salary of CFA charterholders with 10 years of experience?

1. $172,514 to $227,486.
2. $160,000 to $240,000.
3. $172,754 to $227,246.

# Question #28

The power of the test is:

1. the probability of rejecting a false null hypothesis.
2. the probability of rejecting a true null hypothesis.
3. equal to the level of confidence.

# Question #29

Joe Sutton is evaluating the effects of the 1987 market decline on the volume of trading. Specifically, he wants to test whether the decline affected trading volume. He selected a sample of 500 companies and collected data on the total annual volume for one year prior to the decline and for one year following the decline. What is the set of hypotheses that Sutton is testing?

1. H0: µd = µd0 versus Ha: µd ≠ µd0.
2. H0: µd = µd0 versus Ha: µd > µd0.
3. H0: µd ≠ µd0 versus Ha: µd = µd0.

# Question #30

Given: $1,000 investment, compounded monthly at 12% find the future value after one year.

1. $1,120.00.
2. $1,126.83.
3. $1,121.35.

# Question #31

If the null hypothesis is innocence, then the statement "It is better that the guilty go free, than the innocent are punished" is an example of preferring a:

1. higher level of significance.
2. type I error over a type II error.
3. type II error over a type I error.

# Question #32

Standardizing a normally distributed random variable requires the:

1. mean, variance and skewness.
2. natural logarithm of X.
3. mean and the standard deviation.

# Question #33

An analyst conducts a two-tailed z-test to determine if small cap returns are significantly different from 10%. The sample size was 200. The computed z-statistic is 2.3. Using a 5% level of significance, which statement is *most* accurate?

1. Reject the null hypothesis and conclude that small cap returns are significantly different from 10%.
2. Fail to reject the null hypothesis and conclude that small cap returns are close enough to 10% that we cannot say they are significantly different from 10%.
3. You cannot determine what to do with the information given.

# Question #34

What is the effective annual rate if the stated rate is 12% compounded quarterly?

1. 57.35%.
2. 12.00%.
3. 12.55%.

# Question #35

Which of the following statements about statistical concepts is *least* accurate?

1. For a normal distribution, only 95% of the observations lie within ±3 standard deviations from the mean.
2. For any distribution, based on Chebyshev's Inequality, 75% of the observations lie within ±2 standard deviations from the mean.
3. The coefficient of variation is useful when comparing dispersion of data measured in different units or having large differences in their means.

# Question #36

Which of the following statements about histograms and frequency polygons is *least* accurate?

1. A histogram and a frequency polygon both plot the absolute frequency on the vertical axis.
2. A frequency polygon is constructed by plotting the midpoint of each interval on the horizontal axis.
3. A histogram connects points with a straight line.

# Question #37

A local high school basketball team had 18 home games this season and averaged 58 points per game. If we assume that the number of points made in home games is normally distributed, which of the following is *most likely* the range of points for a confidence interval of 90%?

1. 26 to 80.
2. 34 to 82.
3. 24 to 78.

# Question #38

Use the results from the following survey of 500 firms to answer the question.

|  |  |
| --- | --- |
| **Number of Employees** | **Frequency** |
| 300 up to 400 | 40 |
| 400 up to 500 | 62 |
| 500 up to 600 | 78 |
| 600 up to 700 | 101 |
| 700 up to 800 | 131 |
| 800 up to 900 | 88 |

The number of classes in this frequency table is:

1. 600.
2. 5.
3. 6.

# Question #39

Which of the following is NOT an assumption of the binomial distribution?

1. The trials are independent.
2. Random variable X is discrete.
3. The expected value is a whole number.

# Question #40

An investor purchases a 10-year, $1,000 par value bond that pays annual coupons of $100. If the market rate of interest is 12%, what is the current market value of the bond?

1. $1,124.
2. $887.
3. $950.

# Question #41

The returns for individual assets in a portfolio are shown below:

|  |  |
| --- | --- |
| **Assets** | **Return (%)** |
| A | 1.3 |
| B | 1.4 |
| C | 2.2 |
| D | 3.4 |
| E | 1.7 |

What is the population standard deviation of the returns?

1. 0.77%.
2. 0.56%.
3. 1.71%.

# Question #42

For a two-tailed test of hypothesis involving a z-distributed test statistic and a 5% level of significance, a calculated z-statistic of 1.5 indicates that:

1. the null hypothesis is rejected.
2. the test is inconclusive.
3. the null hypothesis cannot be rejected.

# Question #43

An investor invested $10,000 into an account five years ago. Today, the account value is $18,682. What is the investor's annual rate of return on a continuously compounded basis?

1. 13.31%.
2. 11.33%.
3. 12.50%.

# Question #44

Last year, the average salary increase for poultry research assistants was 2.5%. Of the 10,000 poultry research assistants, 2,000 received raises in excess of this amount. The odds that a randomly selected poultry research assistant received a salary increase in excess of 2.5% are:

1. 1 to 4.
2. 20%.
3. 1 to 5.

# Question #45

A p-value of 0.02% means that a researcher:

1. can reject the null hypothesis at the 5% significance level but cannot reject at the 1% significance level.
2. cannot reject the null hypothesis at either the 5% or 1% significance levels.
3. can reject the null hypothesis at both the 5% and 1% significance levels.

# Question #46

What is the compound annual growth rate for stock A which has annual returns of 5.60%, 22.67%, and -5.23%?

1. 8.72%.
2. 6.00%.
3. 7.08%.

# Question #47

In a negatively skewed distribution, what is the order (from lowest value to highest) for the distribution's mode, mean, and median values?

1. Mean, median, mode.
2. Mode, mean, median.
3. Median, mode, mean.

# Question #48

Which of the following is the most accurate statement about stated and effective annual interest rates?

1. The stated annual interest rate is used to find the effective annual rate.
2. So long as interest is compounded more than once a year, the stated annual rate will always be more than the effective rate.
3. The stated rate adjusts for the frequency of compounding.

# Question #49

The multiplication rule of probability is used to calculate the:

1. probability of at least one of two events.
2. unconditional probability of an event, given conditional probabilities.
3. joint probability of two events.

# Question #50

The lower limit of a normal distribution is:

1. negative one.
2. negative infinity.
3. zero.

# Question #51

In which one of the following cases is the t-statistic the appropriate one to use in the construction of a confidence interval for the population mean?

1. The distribution is nonnormal, the population variance is known, and the sample size is at least 30.
2. The distribution is normal, the population variance is known, and the sample size is less than 30.
3. The distribution is nonnormal, the population variance is unknown, and the sample size is at least 30.

# Question #52

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken. The sample value of the computed *z*-statistic = 3.4. The appropriate decision at a 5% significance level is to:

1. reject the null hypothesis and conclude that the population mean is equal to 100.
2. reject the null hypothesis and conclude that the population mean is not equal to 100.
3. reject the null hypotheses and conclude that the population mean is greater than 100.

# Question #53

Ron Jacobi, manager with the Toulee Department of Natural Resources, is responsible for setting catch-and-release limits for Lake Norby, a large and popular fishing lake. For the last two months he has been sampling to determine whether the average length of Northern Pike in the lake exceeds 18 inches (using a significance level of 0.05). Assume that the p-value is 0.08. In concluding that the average size of the fish exceeds 18 inches, Jacobi:

1. makes a Type II error.
2. is correct.
3. makes a Type I error.

# Question #54

Johnson Inc. manages a growth portfolio of equity securities that has had a mean monthly return of 1.4% and a standard deviation of returns of 10.8%. Smith Inc. manages a blended equity and fixed income portfolio that has had a mean monthly return of 1.2% and a standard deviation of returns of 6.8%. The mean monthly return on Treasury bills has been 0.3%. Based on the Sharpe ratio, the:

1. Johnson and Smith portfolios have exhibited the same risk-adjusted performance.
2. performance of the Smith portfolio is preferable to the performance of the Johnson portfolio.
3. performance of the Johnson portfolio is preferable to the performance of the Smith portfolio.

# Question #55

John is getting a $25,000 loan, with an 8% annual interest rate to be paid in 48 equal monthly installments. If the first payment is due at the end of the first month, the principal and interest values for the first payment are *closest* to:

Principal Interest

1. $443.65 $200.00
2. $410.32 $200.00
3. $443.65 $166.67

# Question #56

An investor wants to receive $1,000 at the beginning of each of the next ten years with the first payment starting today. If the investor can earn 10 percent interest, what must the investor put into the account today in order to receive this $1,000 cash flow stream?

1. $7,145.
2. $6,759.
3. $6,145.

# Question #57

Jo Su believes that there should be a negative relation between returns and systematic risk. She intends to collect data on returns and systematic risk to test this theory. What is the appropriate alternative hypothesis?

1. Ha: ρ < 0.
2. Ha: ρ > 0.
3. Ha: ρ ≠ 0.

# Question #58

Nikki Ali and Donald Ankard borrowed $15,000 to help finance their wedding and reception. The annual payment loan carries a term of seven years and an 11% interest rate. Respectively, the amount of the first payment that is interest and the amount of the second payment that is principal are *approximately*:

1. $1,650; $1,702.
2. $1,650; $1,468.
3. $1,468; $1,702.

# Question #59

Which of the following statements about sampling and estimation is *most* accurate?

1. The probability that a parameter lies within a range of estimated values is given by α.
2. The standard error of the sample means when the standard deviation of the population is unknown equals s / √n, where s = sample standard deviation.
3. The standard error of the sample means when the standard deviation of the population is known equals σ / √n, where σ = sample standard deviation adjusted by n − 1.

# Question #60

Compute the standard deviation of a two-stock portfolio if stock A (40% weight) has a variance of 0.0015, stock B (60% weight) has a variance of 0.0021, and the correlation coefficient for the two stocks is -0.35?

1. 1.39%.
2. 0.07%.
3. 2.64%.

# QUANTITATIVE METHODS – 60 QUESTIONS

# Question #1

A random variable that has a countable number of possible values is called a:

1. probability distribution.
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**Answer B**

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**Answer C**

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3. The mean of the sample is ∑X / (n − 1) = 5.

**Answer B**

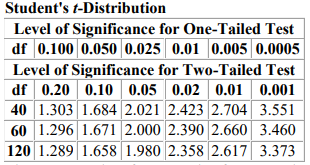
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# Question #27



The average salary for a sample of 61 CFA charterholders with 10 years’ experience is $200,000, and the sample standard deviation is $80,000. Assume the population is normally distributed. Which of the following is a 99% confidence interval for the population mean salary of CFA charterholders with 10 years of experience?

1. $172,514 to $227,486.
2. $160,000 to $240,000.
3. $172,754 to $227,246.

**Answer C**

# Question #28

The power of the test is:

1. the probability of rejecting a false null hypothesis.
2. the probability of rejecting a true null hypothesis.
3. equal to the level of confidence.

**Answer A**

# Question #29

Joe Sutton is evaluating the effects of the 1987 market decline on the volume of trading. Specifically, he wants to test whether the decline affected trading volume. He selected a sample of 500 companies and collected data on the total annual volume for one year prior to the decline and for one year following the decline. What is the set of hypotheses that Sutton is testing?

1. H0: µd = µd0 versus Ha: µd ≠ µd0.
2. H0: µd = µd0 versus Ha: µd > µd0.
3. H0: µd ≠ µd0 versus Ha: µd = µd0.

**Answer A**

# Question #30

Given: $1,000 investment, compounded monthly at 12% find the future value after one year.

1. $1,120.00.
2. $1,126.83.
3. $1,121.35.

**Answer B**

# Question #31

If the null hypothesis is innocence, then the statement "It is better that the guilty go free, than the innocent are punished" is an example of preferring a:

1. higher level of significance.
2. type I error over a type II error.
3. type II error over a type I error.

**Answer C**

# Question #32

Standardizing a normally distributed random variable requires the:

1. mean, variance and skewness.
2. natural logarithm of X.
3. mean and the standard deviation.

**Answer C**

# Question #33

An analyst conducts a two-tailed z-test to determine if small cap returns are significantly different from 10%. The sample size was 200. The computed z-statistic is 2.3. Using a 5% level of significance, which statement is *most* accurate?

1. Reject the null hypothesis and conclude that small cap returns are significantly different from 10%.
2. Fail to reject the null hypothesis and conclude that small cap returns are close enough to 10% that we cannot say they are significantly different from 10%.
3. You cannot determine what to do with the information given.

**Answer A**

# Question #34

What is the effective annual rate if the stated rate is 12% compounded quarterly?

1. 57.35%.
2. 12.00%.
3. 12.55%.

**Answer C**

# Question #35

Which of the following statements about statistical concepts is *least* accurate?

1. For a normal distribution, only 95% of the observations lie within ±3 standard deviations from the mean.
2. For any distribution, based on Chebyshev's Inequality, 75% of the observations lie within ±2 standard deviations from the mean.
3. The coefficient of variation is useful when comparing dispersion of data measured in different units or having large differences in their means.

**Answer A**

# Question #36

Which of the following statements about histograms and frequency polygons is *least* accurate?

1. A histogram and a frequency polygon both plot the absolute frequency on the vertical axis.
2. A frequency polygon is constructed by plotting the midpoint of each interval on the horizontal axis.
3. A histogram connects points with a straight line.

**Answer C**

# Question #37

A local high school basketball team had 18 home games this season and averaged 58 points per game. If we assume that the number of points made in home games is normally distributed, which of the following is *most likely* the range of points for a confidence interval of 90%?

1. 26 to 80.
2. 34 to 82.
3. 24 to 78.

**Answer B**

# Question #38

Use the results from the following survey of 500 firms to answer the question.

|  |  |
| --- | --- |
| **Number of Employees** | **Frequency** |
| 300 up to 400 | 40 |
| 400 up to 500 | 62 |
| 500 up to 600 | 78 |
| 600 up to 700 | 101 |
| 700 up to 800 | 131 |
| 800 up to 900 | 88 |

The number of classes in this frequency table is:

1. 600.
2. 5.
3. 6.

**Answer C**

# Question #39

Which of the following is NOT an assumption of the binomial distribution?

1. The trials are independent.
2. Random variable X is discrete.
3. The expected value is a whole number.

**Answer C**

# Question #40

An investor purchases a 10-year, $1,000 par value bond that pays annual coupons of $100. If the market rate of interest is 12%, what is the current market value of the bond?

1. $1,124.
2. $887.
3. $950.

**Answer B**

# Question #41

The returns for individual assets in a portfolio are shown below:

|  |  |
| --- | --- |
| **Assets** | **Return (%)** |
| A | 1.3 |
| B | 1.4 |
| C | 2.2 |
| D | 3.4 |
| E | 1.7 |

What is the population standard deviation of the returns?

1. 0.77%.
2. 0.56%.
3. 1.71%.

**Answer A**

# Question #42

For a two-tailed test of hypothesis involving a z-distributed test statistic and a 5% level of significance, a calculated z-statistic of 1.5 indicates that:

1. the null hypothesis is rejected.
2. the test is inconclusive.
3. the null hypothesis cannot be rejected.

**Answer C**

# Question #43

An investor invested $10,000 into an account five years ago. Today, the account value is $18,682. What is the investor's annual rate of return on a continuously compounded basis?

1. 13.31%.
2. 11.33%.
3. 12.50%.

**Answer C**

# Question #44

Last year, the average salary increase for poultry research assistants was 2.5%. Of the 10,000 poultry research assistants, 2,000 received raises in excess of this amount. The odds that a randomly selected poultry research assistant received a salary increase in excess of 2.5% are:

1. 1 to 4.
2. 20%.
3. 1 to 5.

**Answer A**

# Question #45

A p-value of 0.02% means that a researcher:

1. can reject the null hypothesis at the 5% significance level but cannot reject at the 1% significance level.
2. cannot reject the null hypothesis at either the 5% or 1% significance levels.
3. can reject the null hypothesis at both the 5% and 1% significance levels.

**Answer C**

# Question #46

What is the compound annual growth rate for stock A which has annual returns of 5.60%, 22.67%, and -5.23%?

1. 8.72%.
2. 6.00%.
3. 7.08%.

**Answer C**

# Question #47

In a negatively skewed distribution, what is the order (from lowest value to highest) for the distribution's mode, mean, and median values?

1. Mean, median, mode.
2. Mode, mean, median.
3. Median, mode, mean.

**Answer A**

# Question #48

Which of the following is the most accurate statement about stated and effective annual interest rates?

1. The stated annual interest rate is used to find the effective annual rate.
2. So long as interest is compounded more than once a year, the stated annual rate will always be more than the effective rate.
3. The stated rate adjusts for the frequency of compounding.

**Answer A**

# Question #49

The multiplication rule of probability is used to calculate the:

1. probability of at least one of two events.
2. unconditional probability of an event, given conditional probabilities.
3. joint probability of two events.

**Answer C**

# Question #50

The lower limit of a normal distribution is:

1. negative one.
2. negative infinity.
3. zero.

**Answer B**

# Question #51

In which one of the following cases is the t-statistic the appropriate one to use in the construction of a confidence interval for the population mean?

1. The distribution is nonnormal, the population variance is known, and the sample size is at least 30.
2. The distribution is normal, the population variance is known, and the sample size is less than 30.
3. The distribution is nonnormal, the population variance is unknown, and the sample size is at least 30.

**Answer C**

# Question #52

In order to test if the mean IQ of employees in an organization is greater than 100, a sample of 30 employees is taken. The sample value of the computed *z*-statistic = 3.4. The appropriate decision at a 5% significance level is to:

1. reject the null hypothesis and conclude that the population mean is equal to 100.
2. reject the null hypothesis and conclude that the population mean is not equal to 100.
3. reject the null hypotheses and conclude that the population mean is greater than 100.

**Answer C**

# Question #53

Ron Jacobi, manager with the Toulee Department of Natural Resources, is responsible for setting catch-and-release limits for Lake Norby, a large and popular fishing lake. For the last two months he has been sampling to determine whether the average length of Northern Pike in the lake exceeds 18 inches (using a significance level of 0.05). Assume that the p-value is 0.08. In concluding that the average size of the fish exceeds 18 inches, Jacobi:

1. makes a Type II error.
2. is correct.
3. makes a Type I error.

**Answer C**

# Question #54

Johnson Inc. manages a growth portfolio of equity securities that has had a mean monthly return of 1.4% and a standard deviation of returns of 10.8%. Smith Inc. manages a blended equity and fixed income portfolio that has had a mean monthly return of 1.2% and a standard deviation of returns of 6.8%. The mean monthly return on Treasury bills has been 0.3%. Based on the Sharpe ratio, the:

1. Johnson and Smith portfolios have exhibited the same risk-adjusted performance.
2. performance of the Smith portfolio is preferable to the performance of the Johnson portfolio.
3. performance of the Johnson portfolio is preferable to the performance of the Smith portfolio.

**Answer B**

# Question #55

John is getting a $25,000 loan, with an 8% annual interest rate to be paid in 48 equal monthly installments. If the first payment is due at the end of the first month, the principal and interest values for the first payment are *closest* to:

Principal Interest

1. $443.65 $200.00
2. $410.32 $200.00
3. $443.65 $166.67

**Answer C**

# Question #56

An investor wants to receive $1,000 at the beginning of each of the next ten years with the first payment starting today. If the investor can earn 10 percent interest, what must the investor put into the account today in order to receive this $1,000 cash flow stream?

1. $7,145.
2. $6,759.
3. $6,145.

**Answer B**

# Question #57

Jo Su believes that there should be a negative relation between returns and systematic risk. She intends to collect data on returns and systematic risk to test this theory. What is the appropriate alternative hypothesis?

1. Ha: ρ < 0.
2. Ha: ρ > 0.
3. Ha: ρ ≠ 0.

**Answer A**

# Question #58

Nikki Ali and Donald Ankard borrowed $15,000 to help finance their wedding and reception. The annual payment loan carries a term of seven years and an 11% interest rate. Respectively, the amount of the first payment that is interest and the amount of the second payment that is principal are *approximately*:

1. $1,650; $1,702.
2. $1,650; $1,468.
3. $1,468; $1,702.

**Answer A**

**Question #59**

Which of the following statements about sampling and estimation is *most* accurate?

1. The probability that a parameter lies within a range of estimated values is given by α.
2. The standard error of the sample means when the standard deviation of the population is unknown equals s / √n, where s = sample standard deviation.
3. The standard error of the sample means when the standard deviation of the population is known equals σ / √n, where σ = sample standard deviation adjusted by n − 1.

**Answer B**

# Question #60

Compute the standard deviation of a two-stock portfolio if stock A (40% weight) has a variance of 0.0015, stock B (60% weight) has a variance of 0.0021, and the correlation coefficient for the two stocks is -0.35?

1. 1.39%.
2. 0.07%.
3. 2.64%.

**Answer C**