1. The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 45, top managers, from each one of the 9 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | df | MS | F |
| Between | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

Between the degree of freedom is:

---------------------------------------------

1. A student wants to predict the child birth rate based on gross domestic product (GDP).

Since the student is interested in predicting child birth rate, the independent variable is gross domestic product (GDP)

* True
* False
1. A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 15 pounds. A sample of 43 infants is randomly selected and their average sample weights at birth are 37 and the standard deviation is 11.

The null hypothesis H0: M=

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A quality assurance test was conducted on a randomly selected sample of 500 newly developed mobile phones. The results showed an average of 47 defective devices with a standard deviation of 3 devices. What is the point estimate of the mean for the entire population?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. BBM bank wants to estimate the mean yearly salary. A sample of 15 employers shows that the sample means yearly salary to be 625 with population standard deviation 12.

Based on 90% confidence level, the lower confidence limit for the population mean is :

 (use three decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 65, top managers, from each one of the 5 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| variation | SS | df | MS | F |
| Between | 890 | ? | ? | ? |
| within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

Within the degree of freedom is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7-The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of room (x) in the family compound.

A random sample of 24 homes gives the following information.

Sum(x)=24 , sum(y)=22 , sum (x\*y)=6701 , sum(x^2)=8524 , sum(y^2)=9588

The correlation coefficient is: (answer to three decimal places)

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1. A quality assurance test was conducted on a randomly selected sample of 500 newly developed mobile phones. The results showed an average of 95 defective devices with a standard deviation of 24 devices. What is the point estimate of the mean for the entire population?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 6 pounds. A sample of 66 infants is randomly selected and their average sample weights at birth are 5 and the standard deviation is 7.

The statistic test is: ( answer to three decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 68, top managers, from each one of the 6 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation  | SS | Df | MS | F |
| Between  | 890 | ? | ? | ? |
| Within  | 310 | ? | ? |  |
| Total  | 1200 | ? |  |  |

The between mean square is:

(round the answer to three decimal places, example = 0.000)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Most graduate schools of business require applicants for admission to take the Graduate Management Admission Councils GMAT examination. Scores on the GMAT are roughly normally distributed with a mean of 580 and standard deviation 13. How high must an individual score on the GMAT to score in the lowest 5%?

(answer to 3 decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of room (x) in the family compound.

A random sample of 12 homes gives the following information.

Sum(x)=36 , sum(y)=48 , sum (x\*y)=6777 , sum(x^2)=8524 , sum(y^2)=9588

The correlation coefficient is: (answer to three decimal places)

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1. Most graduate schools of business require applicants for admission to take the Graduate Management Admission Councils GMAT examination. Scores on the GMAT are roughly normally distributed with a mean of 548 and standard deviation 24. How high must an individual score on the GMAT to score in the highest 5%?

(answer to 3 decimal places)

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1. To employ Analysis of variance (ANOVA), the populations being studied must be approximately normally distributed.
* True
* False
1. A z-statistic is used for a problem involving any sample size and an unknown population standard deviation.
* True
* False
1. The values of a and b in the regression equation are called the regression coefficient.
* True
* False
1. The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 70, top managers, from each one of the 4 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation  | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| Within  | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

The within mean square is? (answer to 3 decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 6 pounds. A sample of 16 infants is randomly selected and their average sample weights at birth are not known and the standard deviation is 1. The calculated test statistics t is 2.458

The sample average weight is (answer to 3 decimal places)

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1. A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 7 pounds. A sample of 14 infants is randomly selected and their average sample weights at birth are not known and the standard deviation is 5. The calculated test statistics t is 3.269

 The sample average weight is (answer to 3 decimal places)

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1. A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 14 pounds. A sample of 61 infants is randomly selected and their average sample weights at birth are 8 and the standard deviation is 5.

The statistic test is: ( answer to three decimal places)

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21-A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 3 pounds. A sample of 10 infants is randomly selected and their average sample weights at birth are 20 and the standard deviation is 5. The confidence level is 0.97.

The level of significance (alpha) is

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22- A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 18 pounds. A sample of 10 infants is randomly selected and their average sample weights at birth are 20 and the standard deviation is 5. The confidence level is 0.96.

The level of significance (alpha) is ( answer to two decimal places)

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23- In the regression equation, what does the letter b represent?

* The slope of the line
* An error
* The Y-intercept
* Any value of the independent variable that is selected.

 24-The Null Hypothesis is that the population means are not the same.

* True
* False

 25- A point estimate is a single value used to estimate a population parameter.

* True
* False

26- Consider the prices have a Normal Distribution.

Price mean = 81

Price S.D =8

What is the probability the prices will be less than price 101?

* A.0.993
* B.0.332
* C.0.448
* D.0.778

27-The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 42, top managers, from each one of the 4 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| Within  | 310 | ? | ? |  |
| total | 1200 | ? |  |  |

The within mean square is? (answer to 3 decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

28- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of rooms (x) in the family compound.

A random sample of 21 homes gives the following information.

The intercept (a)=7.81 and the slope =1.63

The estimated kilowatt hours for 4 number of rooms? (answer to three decimal places)

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29- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 59, top managers, from each one of the 7 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between  | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

The within mean square is ? (answer to 3 decimal places)

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30-In an ANOVA table, n refers to the number of treatments.

* True
* False

 31- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 24, top managers, from each one of the 5 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between  | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

Between the degree of freedom is:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32-BBM bank wants to estimate the mean yearly salary. A sample of 145 employers shows that the sample means yearly salary to be 655 with population standard deviation 6.

Based on 99% confidence level, the upper confidence limit for the population mean is:

(use three decimal places)

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33- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 95, top managers, from each one of the 4 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| between | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| total | 1200 | ? |  |  |

The F ratio (calculated) for this table is:

(Round to 3 decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34- If the correlation between two variables is close to Zero , the linear association between the variables is

* Zero
* Moderate
* Strong
* Weak

35- 3-A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 15 pounds. A sample of 45 infants is randomly selected and their average sample weights at birth are 36 and the standard deviation is 13.

The null hypothesis H0: M=

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36- A quality assurance test was conducted on a randomly selected sample of 500 newly developed mobile phones. The results showed an average of 48 defective devices with a standard deviation of 29 devices. What is the point estimate of the mean for the entire population?

------------------------------

37- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of rooms (x) in the family compound.

A random sample of 15 homes gives the following information.

The intercept (a)=5.13 and the slope =0.21

The estimated kilowatt hours for 5 number of rooms?

(answer to three decimal places)

-----------------------------

38- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of rooms (x) in the family compound.

A random sample of 47 homes gives the following information.

The correlation between kilowatt consumption and number of hours is 0.81

The coefficient of determination is: (answer to three decimal places)

---------------------------------

39- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 102, top managers, from each one of the 3 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| Within  | 310 | ? | ? |  |
| total | 1200 | ? |  |  |

The F ratio (calculated) for this table is:

(Round to 3 decimal places)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 42, top managers, from each one of the 8 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

Between the degree of freedom is:

-----------------------------

41-Most graduate schools of business require applicants for admission to take the Graduate Management Admission Councils GMAT examination. Scores on the GMAT are roughly normally distributed with a mean of 577 and standard deviation 14. How high must an individual score on the GMAT to score in the lowest 5%?

(answer to 3 decimal places)

---------------------------------

42- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of rooms (x) in the family compound.

A random sample of 19 homes gives the following information.

The correlation between kilowatt consumption and number of hours is 0.26

The coefficient of determination is: (answer to three decimal places)

--------------------------------------------

43-Consider the prices have a Normal Distribution.

Price Mean=79

Price SD=9

What is the probability the prices will be more than price 94?

* A.0.047
* B.0.066
* C.0.089
* D.0.017

44-BBM bank wants to estimate the mean yearly salary. A sample of 15 employers shows that the sample means yearly salary to be 550 with population standard deviation 19.

Based on 90% confidence level, the lower confidence limit for the population mean is :

 (use three decimal places)

---------------------------------------------

45- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of room (x) in the family compound.

A random sample of 13 homes gives the following information.

Sum(x)=82 , sum(y)=66 , sum (x\*y)=660, sum(x^2)=724 , sum(y^2)=572

To build the regression equation the slope (b) is: (answer to three decimal places)

--------------------------------------

46- BBM bank wants to estimate the mean yearly salary. A sample of 15 employers shows that the sample means yearly salary to be 1129 with population standard deviation 16.

Based on 90% confidence level, the lower confidence limit for the population mean is :

 (use three decimal places)

-----------------------------------------

47- BBM bank wants to estimate the mean yearly salary. A sample of 52 employers shows that the sample means yearly salary to be 650 with population standard deviation 3.

Based on 99% confidence level, the upper confidence limit for the population mean is :

 (use three decimal places)

------------------------------------

48- The length of human pregnancies from conception to birth approximates a normal distribution with a mean of 266 days and a standard deviation of 16 days. What proportion of all pregnancies will last between 240 and 270 days?

* A.0.5471
* B.0.4279
* C.0.3980
* D.0.4177

49- The BE Electricity company is studying the relationship between kilowatt consumption (y) used and the number of room (x) in the family compound.

A random sample of 27 homes gives the following information.

Sum(x)=24 , sum(y)=24 , sum (x\*y)=2141, sum(x^2)=8524 , sum(y^2)=9588

The correlation coefficient is: (answer to three decimal places)

--------------------------------

50-Consider the prices have a Normal Distribution.

Price Mean=81

Price SD=8

What is the probability the prices will be less than price 101?

* A.0.778
* B.0.448
* C.0.332
* D.0.993

51- The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 91, top managers, from each one of the 3 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| variation | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

The F ratio (calculated) for this table is :

Round to 3 decimal places

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

52-P (0 < Z < 1.17) = 0.879.

* True
* False

53- Consider the prices have a Normal Distribution.

Price Mean=81

Price SD=8

What is the probability the prices will between price 91 and price 73?

* A.0.452
* B. 0.735
* C.0.989
* D.0.211

54- the t-distribution value would almost be equal to a z-distribution value, when the sample size is infinitely large.

* True
* False

55- A doctor is interested in predicting the Covid 19 patient rate based on gross domestic product (GDP).

As the doctor is interested is predicting the Covid 10 patient rate, the dependent variable is gross domestic product.

* True
* False

56- Consider the prices have a Normal Distribution.

Price Mean=72

Price SD=7

What is the probability the prices will be between price 82 and price 64?

* A.0.796
* B.0.431
* 0.580
* 0.244

57-The manager of a computer software company wants to test the average number of hours top managers spend at their computer terminals by industry type. The manager selected a sample of 40 top managers, from each one of the 5 industries. He conducted an ANOVA test that shown as follows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variation | SS | Df | MS | F |
| Between | 890 | ? | ? | ? |
| Within | 310 | ? | ? |  |
| Total | 1200 | ? |  |  |

The within mean square is? Round it to 3 decimal places

-----------------------------------------

58- Alternate Hypothesis is represented by and written as:

* 1- H0A
* 2-H0
* 3-H1A
* 4-H1

59- which value of r indicate a weaker correlation than +0.40?

* +0.80
* -0.80
* +0.50
* -0.30

60-In regression analysis, error is defined as ( Y^- -Y).

* True
* False

61- The factors that determine the width of a confidence interval for a mean are

* A. the desired level of confidence
* B. the number of observations in the sample n
* C. All of the above
* D. the variability in the population, usually by the sample standard deviation s.

62- A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 22 pounds. A sample of 10 infants is randomly selected and their average sample weights at birth are 20 and the standard deviation is 5. The confidence level is 0.91.

The level of significance (alpha) is

--------------------------------------

63-Most graduate schools of business require applicants for admission to take the Graduate Management Admission Councils GMAT examination. Scores on the GMAT are roughly normally distributed with a mean of 524 and standard deviation 6. How high must an individual score on the GMAT to score in the highest 5%?

(answer to 3 decimal places)

----------------------------------------------

64- Consider the prices have a Normal Distribution.

Price Mean=79

Price SD=9

What is the probability the prices will be between price 64 and price 74?

* A.0.240
* B.0.555
* C.0.173
* D.0.569

65- A hypothesis regarding newborn infants’ weight at a community hospital is that the mean is 23 pounds. A sample of 10 infants is randomly selected and their average sample weights at birth are 20 and the standard deviation is 5.

The level of significance (alpha) is 0.02

The type I (one) error is (answer to two decimal places)

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