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May 2012

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WEEK 5: HOMEWORK

Started: Jun 20 at 3:30pm

QUIZ INSTRUCTIONS

Click the button to start the homework set. You can re-do this assignment as often as you need. Be sure to have the Week 5 spreadsheet available to help with the calculations. It is provided in [Week 5 Resources](#).

Question 1 2 pts

From a random sample of 58 businesses, it is found that the mean time the owner spends on administrative issues each week is 21.69 with a population standard deviation of 3.54. What is the 95% confidence interval for the amount of time spent on administrative issues?

Homework Help:
[5VA_Calculating confidence intervals](#) (4:04)
[5DA_Concept and meaning of confidence intervals](#) (DOCX)

- (19.24, 24.14)
- (20.71, 22.67)
- (20.93, 22.46)
- (21.78, 22.60)

Question 2 2 pts

If a confidence interval is given from 43.8 up to 62.0 and the mean is known to be 52.9, what is the margin of error?

Homework Help:
[5DB_Finding margin of error from given confidence interval](#) (DOCX)

- 9.1
- 18.2
- 43.8
- 4.6

Question 3 2 pts

If a shirt manufacturer wanted to make shirts that fit most individuals, what characteristics would be better?

Homework Help:
[5DC_Confidence intervals in manufacturing_high vs low level of confidence_wide vs narrow](#) (DOCX)

- narrow confidence interval so shirts fit few individuals
- narrow confidence interval so shirts fit most individuals
- wide confidence interval so shirts fit most individuals
- wide confidence interval so shirts fit few individuals

Question 4 2 pts

Which of the following are most likely to lead to a wide confidence interval?

Homework Help:
[5DD_Changes in confidence interval based on changes in standard deviation or sample size](#) (DOCX)

- large mean
- large sample size
- small sample size
- small standard deviation

Question 5 2 pts

If you were designing a study that would benefit from data points with high values, you would want the input variable to have:

Homework Help:
[5DC_Confidence intervals in manufacturing_high vs low level of confidence_wide vs narrow](#) (DOCX)
[5DD_Changes in confidence interval based on changes in standard deviation or sample size](#) (DOCX)

- a large margin of error
- a large standard deviation
- a large mean
- a large sample size

Question 6 2 pts

The 95% confidence interval for these parts is 56.98 to 57.05 under normal operations. A systematic sample is taken from the manufacturing line to determine if the production process is still within acceptable levels. The mean of the sample is 57.04. What should be done about the production line?

Homework Help:

QUESTIONS

- [Question 1](#)
- [Question 2](#)
- [Question 3](#)
- [Question 4](#)
- [Question 5](#)
- [Question 6](#)
- [Question 7](#)
- [Question 8](#)

Time Elapsed: [Hide](#)
 Attempt due: Jun 10 at 12:59am
 0 Minutes, 23 Seconds

[5DE. Given a confidence interval and sample mean ,what decisions can be made](#) (DOCX)

- Stop the line as it is outside the confidence interval
- Keep the line operating as it is outside the confidence interval
- Stop the line as it is inside the confidence interval
- Keep the line operating as it is inside the confidence interval

Question 7 2 pts

In a sample of 65 temperature readings taken from the freezer of a restaurant, the mean is 31.9 degrees and the population standard deviation is 2.7 degrees. What would be the 80% confidence interval for the temperatures in the freezer?

Homework Help:

[5VA. Calculating confidence intervals](#) (4:04)

- (31.36, 31.90)
- (31.47, 32.33)
- (29.20, 34.61)
- (26.59, 37.38)

Question 8 2 pts

What is the 99% confidence interval for a sample of 36 seat belts that have a mean length of 85.6 inches long and a population standard deviation of 2.5 inches?

Homework Help:

[5VA. Calculating confidence intervals](#) (4:04)

- (84.5, 86.7)
- (84.4, 86.6)
- (83.1, 88.1)
- (80.6, 90.6)

Question 9 2 pts

If two samples A and B had the same mean and sample size, but sample B had a larger standard deviation, which sample would have the wider 95% confidence interval?

Homework Help:

[5DD. Changes in confidence interval based on changes in standard deviation or sample size](#) (DOCX)

- Sample A as its sample is more disperse
- Sample B as its sample is more disperse
- Sample B as it has the smaller sample
- Sample A as it has the smaller sample

Question 10 2 pts

Why might a company use a lower confidence interval, such as 80%, rather than a high confidence interval, such as 99%?

Homework Help:

[5DF. Why companies in different industries use different levels of confidence](#) (DOCX)

- It is cheaper as more samples can be collected
- It is faster as the sample size can be smaller
- It is faster as more samples can be collected in a shorter time
- It is cheaper as the sample size needs to be larger

Question 11 2 pts

Determine the minimum sample size required when you want to be 95% confident that the sample mean is within one unit of the population mean. Assume a population standard deviation of 4.3 in a normally distributed population.

Homework Help:

[5VB. Calculating minimum sample size](#) (1:52)

[5DG. Why set a minimum sample size](#) (DOCX)

- 70
- 73
- 72
- 71

Question 12 2 pts

Determine the minimum sample size required when you want to be 99% confident that the sample mean is within 0.50 units of the population mean. Assume a population standard deviation of 1.4 in a normally distributed population.

Homework Help:

[5VB. Calculating minimum sample size](#) (1:52)

[5DG. Why set a minimum sample size](#) (DOCX)

- 31
- 53
- 30

Question 13 2 pts

In a sample of 10 CEOs, they spent an average of 12.9 hours each week looking into new product opportunities with a sample standard deviation of 3.8 hours. Find the 95% confidence interval. Assume the times are normally distributed.

Homework Help:

[5VA_Calculating_confidence_intervals](#) (4:04)

[5VC_Using_z_or_t](#) (2:13)

- (9.1, 16.7)
- (10.5, 15.3)
- (11.1, 14.7)
- (10.2, 15.6)

Question 14 2 pts

In a sample of 18 kids, their mean time on the internet on the phone was 28.6 hours with a sample standard deviation of 5.6 hours. Which distribution would be most appropriate to use, when we assume these times are normally distributed?

Homework Help:

[5VC_Using_z_or_t](#) (2:13)

- z distribution as the sample standard deviation always represents the population
- z distribution as the population standard deviation is known while the times are assumed to be normally distributed
- t distribution as the population standard deviation is unknown while the times are assumed to be normally distributed
- t distribution as the sample standard deviation is unknown

Question 15 2 pts

Under a time crunch, you only have time to take a sample of 10 water bottles and measure their contents. The sample had a mean of 20.05 ounces with a sample standard deviation of 0.3 ounces. What would be the 90% confidence interval, when we assumed these measurements are normally distributed?

Homework Help:

[5VA_Calculating_confidence_intervals](#) (4:04)

[5VC_Using_z_or_t](#) (2:13)

- (19.75, 20.35)
- (19.92, 20.18)
- (19.89, 20.21)
- (19.88, 20.22)

Question 16 2 pts

Say that a supplier claims they are 99% confident that their products will be in the interval of 50.02 to 50.38. You take samples and find that the 99% confidence interval of what they are sending is 50.04 to 50.40. What conclusion can be made?

Homework Help:

[5VD_Comparing_sample_confidence_intervals_with_given_intervals](#) (3:43)

[5DC_Confidence_intervals_in_manufacturing_high_vs_low_level_of_confidence_wide_vs_narrow](#) (DOCK)

- The supplier is less accurate than they claimed
- The supplier products have a higher mean than claimed
- The supplier is more accurate than they claimed
- The supplier products have a lower mean than claimed

Question 17 2 pts

Market research indicates that a new product has the potential to make the company an additional \$1.6 million, with a standard deviation of \$2.0 million. If these estimates were based on a sample of 8 customers from a normally distributed data set, what would be the 95% confidence interval?

Homework Help:

[5VA_Calculating_confidence_intervals](#) (4:04)

[5VC_Using_z_or_t](#) (2:13)

- (-0.40, 3.60)
- (0.21, 3.00)
- (0.00, 3.27)
- (-0.07, 3.27)

Question 18 2 pts

In a sample of 28 cups of coffee at the local coffee shop, the temperatures were normally

distributed with a mean of 162.5 degrees with a sample standard deviation of 14.1 degrees. What would be the 95% confidence interval for the temperature of your cup of coffee?

Homework Help:

[5VA_Calculating confidence intervals](#) (4:04)

[5VC_Using z or t](#) (2:13)

- (157.96, 167.04)
- (157.03, 167.97)
- (148.40, 176.60)
- (158.12, 166.88)

Question 19 2 pts

In a situation where the sample size from a normally distributed data set was decreased from 45 to 22, what would be the impact on the confidence interval?

Homework Help:

[5DD_Changes in confidence interval based on changes in standard deviation or sample size](#) (DOCX)

- It would become narrower with fewer values
- It would become wider due to using the t distribution
- It would become narrower due to using the z distribution
- It would remain the same as sample size does not impact confidence intervals

Question 20 2 pts

You needed a supplier that could provide parts as close to 76.8 inches in length as possible. You receive four contracts, each with a promised level of accuracy in the parts supplied. Which of these four would you be most likely to accept?

Homework Help:

[5DC_Confidence intervals in manufacturing_high vs low level of confidence_wide vs narrow](#) (DOCX)

[5DF_Why companies in different industries use different levels of confidence](#) (DOCX)

- Mean of 76.800 with a 90% confidence interval of 76.6 to 77.0
- Mean of 76.800 with a 99% confidence interval of 76.5 to 77.1
- Mean of 76.8 with a 99% confidence interval of 76.6 to 77.0
- Mean of 76.8 with a 95% confidence interval of 76.6 to 77.0



No new data to save. Last checked at 3:31pm

Submit Quiz

