

Pre-Calculus Multiple Choice Questions - Chapter S6

1 Write the following confidence interval in expanded notation

mean = 45.25 ± 2.25

- a 43.00 - 47.50 b 43.00 - 45.25
c 40.25 - 49.25 d 45.25 - 47.50

	S6.1
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2 Write the following confidence interval in simplified notation

50.25 - 60.75

- a 55 ± 5.25 b 55.5 ± 5.25
c 55.5 ± 5 d 55.5 ± 5.5

	S6.1
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3 Write the following confidence interval in expanded notation

mean = 92.25 ± 0.25

- a 92.25 - 92.50 b 92.00 - 92.50
c 92.00 - 92.25 d 91.75 - 92.75

	S6.1
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1 A sample survey of 81 movie goers showed that the average length of the main feature film was 90 minutes with a standard deviation of 20 minutes. Compute a 90% confidence interval for the mean of the population

- a mean = 88.21 - 91.79 minutes b mean = 85.64 - 94.36 minutes
c mean = 85.10 - 94.90 minutes d mean = 86.34 - 93.66 minutes

	S6.2
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2 A sample survey of 81 movie goers showed that the average length of the main feature film was 90 minutes with a standard deviation of 20 minutes. Compute a 95% confidence interval for the mean of the population

- a mean = 88.21 - 91.79 minutes b mean = 85.64 - 94.36 minutes
c mean = 85.10 - 94.90 minutes d mean = 86.34 - 93.66 minutes

	S6.2
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3 The management of the Hammville Corporation recently conducted a survey of 196 of its employees to determine the average number of hours that each employee sleeps at night. The company statistician submitted the following information to management:

$$\boxed{\sum x = 1479.8} \quad \text{and} \quad \boxed{\sum (x - \bar{x})^2 = 1755}$$

where x is the number of hours slept by each employee. Calculate a 95% confidence interval estimate for the average number of hours that each employee sleeps at night.

- a 6.98 - 9.02 hours b 7.5 - 8.5 hours
c 7.13 - 7.97 hours d Cannot be determined without more information

	S6.2
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1 A large company is considering opening a franchise in St. Louis and wants to estimate the mean household income for the area using a simple random sample of households. Based on information from a pilot study, the company assumes that the standard deviation of household incomes is \$7200. Of the following, which is the least number of households that should be surveyed to obtain an estimate that is within \$200 of the true mean household income with 95 percent confidence?

- a 75
- b 1300
- c 5200
- d 5500
- e 7700

	S6.3
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2 Courtney has constructed a cricket out of paper and rubber bands. According to the instructions for making the cricket, when it jumps it will land on its feet half of the time and on its back the other half of the time. In the first 50 jumps, Courtney's cricket landed on its feet 35 times. In the next 10 jumps, it landed on its feet only twice. Based on this experience, Courtney can conclude

- a The cricket was due to land on its feet less than half the time during the final 10 jumps, since it had landed too often on its feet during the first 50 jumps
- b A confidence interval for estimate the cricket's true probability of landing on its feet is wider after the final 10 jumps than it was before the final 10 jumps
- c A confidence interval for estimating the cricket's true probability of landing on its feet after the final 10 jumps is exactly the same as it was before the final 10 jumps.
- d A confidence interval for estimating the cricket's true probability of landing on its feet is more narrow after the final 10 jumps than it was before the final 10 jumps
- e A confidence interval for estimating the cricket's true probability of landing on its feet based on the initial 50 jumps does not include 0.2, so there must be a defect in the cricket's construction to account for the poor showing in the final 10 jumps.

	S6.3
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3 In general, as the width of a confidence interval increases, the confidence level _____.

- a Decreases
- b Increases
- c Stays Constant
- d Can Not Determine

	S6.3
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