

Unit 8: Statistical Inferences

PRACTICE

Name: _____ Date: _____

Show your work and give each answer as a single exact value; round to two decimal places only where indicated.

1. A normal distribution has mean 70 and standard deviation 5. What is the z-score of a data value of 82?

Answer: _____

3. A normal distribution has mean 60 and standard deviation 8. A z-score of -1.25 corresponds to what data value?

Answer: _____

5. Heights are normally distributed with mean 64 inches and standard deviation 3 inches. Using the 68-95-99.7 rule, what percent of heights are between 61 inches and 67 inches? Give the percent value.

Answer: _____

7. A sample proportion is $\hat{p} = 0.40$ from a sample of size $n = 100$. Compute the standard deviation of the sample proportion, $\sqrt{\hat{p}(1 - \hat{p})/n}$, rounded to two decimal places.

Answer: _____

9. A survey reports a sample proportion of 0.55 with a margin of error of 0.03. What is the upper bound of the confidence interval (as a decimal)?

Answer: _____

2. Test scores are normally distributed with mean 500 and standard deviation 100. A student scores 650. What is her z-score?

Answer: _____

4. Using the 68-95-99.7 rule, what percent of a normal distribution lies within 2 standard deviations of the mean? Give the percent value.

Answer: _____

6. Using the 68-95-99.7 rule, what percent of a normal distribution lies ABOVE a value that is exactly 1 standard deviation above the mean? Give the percent value.

Answer: _____

8. A poll finds $\hat{p} = 0.60$ with a standard error of 0.04. Using a margin of error of 2 standard errors, what is the margin of error (as a decimal)?

Answer: _____

10. A survey reports a sample proportion of 0.55 with a margin of error of 0.03. What is the lower bound of the confidence interval (as a decimal)?

Answer: _____

11. In a treatment experiment, the treatment group had a mean recovery score of 82 and the control group had a mean of 74. What is the difference in means (treatment minus control)?

Answer: _____

12. A treatment experiment gives a difference in group means of 5. Randomized re-groupings (simulation) produced differences ranging from -4 to +4, with none reaching 5. Is the observed difference of 5 statistically significant based on this simulation? Answer yes or no.

Answer: _____