# Unit 8: Statistical Inferences

CONCEPT

Name: _____ Date: _____

*Solve each problem and write your short answer on the line. Show the single calculation where needed.*

**1.** A normal distribution has mean 50 and standard deviation 5. What value is exactly 1 standard deviation above the mean?

**Answer:** _____

**2.** By the empirical rule (68-95-99.7 rule), about what percent of the data in a normal distribution lies within 1 standard deviation of the mean? Give your answer as a percent.

**Answer:** _____

**3.** By the empirical rule, about what percent of the data in a normal distribution lies within 2 standard deviations of the mean? Give your answer as a percent.

**Answer:** _____

**4.** By the empirical rule, about what percent of the data in a normal distribution lies within 3 standard deviations of the mean? Give your answer as a percent.

**Answer:** _____

**5.** A data value is 80. The distribution has mean 70 and standard deviation 5. Compute the z-score using z = (value - mean) / sd.

**Answer:** _____

**6.** A data value is 44. The distribution has mean 50 and standard deviation 3. Compute the z-score using z = (value - mean) / sd.

**Answer:** _____

**7.** A survey gives a sample mean of 20 with a margin of error of 3. What is the lower endpoint of the confidence interval?

**Answer:** _____

**8.** A survey gives a sample mean of 20 with a margin of error of 3. What is the upper endpoint of the confidence interval?

**Answer:** _____

**9.** A confidence interval runs from 40 to 50. What is the sample mean (the center of the interval)?

**Answer:** _____

**10.** A confidence interval runs from 40 to 50. What is the margin of error (half the width of the interval)?

**Answer:** _____

**11.** In an experiment, the treatment group had a mean result of 18 and the control group had a mean result of 15. What is the treatment effect (treatment mean minus control mean)?

**Answer:** _____

**12.** In a sample of 50 people, 20 said yes. What is the sample proportion of people who said yes? Give your answer as a decimal.

**Answer:** _____