

Name _____

I can evaluate reports to make inferences, justify conclusions, and determine the appropriateness of data collection methods.

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W

In a study of 40 randomly selected captive *Octopus vulgaris*, researchers found that the octopi could learn to integrate visual and tactile information to find food after a mean of 119 trials. The estimate had a margin of error of 18 trials at a 95% confidence level. Which of the following is the most reasonable conclusion about the number of trials it would take all captive *Octopus vulgaris* in general to learn to find the food?

- A The evidence suggests that half of them would require 119 or fewer trials.
- B The evidence suggests that the mean number of trials would be 110 trials.
- C The evidence suggests that the mean number of trials would be between 119 and 137 trials.
- D The evidence suggests that the mean number of trials would be between 101 and 137 trials.

Researchers measured the heart rates of several randomly selected astronauts exercising on stationary bicycles during long-term space missions. The researchers found the mean heart rate of the astronauts was 155 beats per minute with a margin of error of 12 beats per minute at a 90% confidence level. Which of the following is the most plausible value for the mean heart rate of all astronauts exercising on stationary bicycles during long-term space missions?

- A 130 beats per minute
- B 140 beats per minute
- C 160 beats per minute
- D 175 beats per minute

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In a poll of 14,097 randomly selected adults in the United States, those polled spent an average of \$95 per day in November of last year as compared with \$91 per day in November two years ago. The estimates had a margin of error of \$4 at the 95% confidence level. Which of the following is a reasonable claim to make based on this sample?

- A All adults in the United States spent between \$91 and \$99 daily last November.
- B 95% of adults in the United States spent between \$91 and \$99 daily last November.
- C It is plausible that average daily spending of adults in the United States remained the same in November of last year as it was in November two years ago.
- D Between 91% and 99% of adults in the United States spent \$4 more daily last November than in November two years ago.

In a particular county, a sample of the population showed that 84% of the households lived in the same residence as they had the previous year. The estimate had a margin of error of 1.5% at the 90% confidence level. If the county has 50,000 households, which of the following best estimates the number of households that lived in the same residence as they had the previous year at the 90% confidence level?

- A 34,500 to 49,500 residents
- B 37,500 to 50,000 residents
- C 41,250 to 42,750 households
- D 44,250 to 45,750 households

