1. The following are a random sample of $n = 11$ IQ scores of seventh-grade girls from a school district in the Midwest:

120, 119, 130, 118, 114, 105, 100, 72, 98, 96, 111

Suppose that the standard deviation is the same for IQ scores in general. That is, assume $\sigma = 15$.

Construct a 99% confidence interval for the mean IQ score μ for the entire school district.

A. A 99% confidence interval is $(96.695, 119.196)$.

B. A 99% confidence interval is $(96.695, 119.996)$.

C. A 99% confidence interval is $(95.895, 120.096)$.

D. A 99% confidence interval is $(95.895, 118.296)$.

E. A 99% confidence interval is $(96.795, 120.096)$.

F. A 99% confidence interval is $(96.695, 118.296)$.

G. A 99% confidence interval is $(96.795, 119.996)$.

H. A 99% confidence interval is $(95.895, 119.196)$.

2. What happens to the margin of error when we decrease the sample size?

A. The margin of error gets bigger.

B. The margin of error gets smaller.

3. The standard deviation of the weights of elephants is known to be approximately $\sigma = 15$ pounds. Suppose $n = 90$ newborn elephants are weighed, and the sample mean is $\bar{x} = 234.061$ pounds.

Find the margin of error of a 95% confidence interval for the mean weight μ of newborn elephant calves.

A. The margin of error for the 95% confidence interval is 2.299.

B. The margin of error for the 95% confidence interval is 2.999.

C. The margin of error for the 95% confidence interval is 2.799.

D. The margin of error for the 95% confidence interval is 3.099.

E. The margin of error for the 95% confidence interval is 2.199.

F. The margin of error for the 95% confidence interval is 2.699.

G. The margin of error for the 95% confidence interval is 3.799.

H. The margin of error for the 95% confidence interval is 3.599.

4. The following are a random sample of $n = 5$ IQ scores of seventh-grade girls from a school district in the Midwest:

91, 108, 98, 118, 104

Suppose that the standard deviation is the same for IQ scores in general. That is, assume $\sigma = 15$.

Construct a 90% confidence interval for the mean IQ score μ for the entire school district.

A. A 90% confidence interval is $(92.965, 115.035)$.

B. A 90% confidence interval is $(92.765, 114.835)$.

C. A 90% confidence interval is $(92.065, 114.135)$.

D. A 90% confidence interval is $(92.965, 114.835)$.

E. A 90% confidence interval is $(92.065, 115.035)$.

F. A 90% confidence interval is $(92.765, 115.435)$.

G. A 90% confidence interval is $(92.965, 115.435)$.

H. A 90% confidence interval is $(92.765, 114.135)$.

5. The standard deviation of the volume of liquid in a 12 fluid-ounce soda can is known to be approximately $\sigma = 0.5$ milliliters. Suppose the volume of liquid of $n = 66$ soda cans is measured, and the sample mean is $\bar{x} = 355.813$ milliliters.

Find the margin of error of a 90% confidence interval for the mean volume μ contained in 12 fluid-ounce soda cans.

A. The margin of error for the 90% confidence interval is 0.101.

B. The margin of error for the 90% confidence interval is 0.081.

C. The margin of error for the 90% confidence interval is 0.021.

D. The margin of error for the 90% confidence interval is 0.181.

E. The margin of error for the 90% confidence interval is 0.051.

F. The margin of error for the 90% confidence interval is 0.111.

G. The margin of error for the 90% confidence interval is 0.121.

H. The margin of error for the 90% confidence interval is 0.171.

6. The standard deviation of the outcome of a fair six-sided die is known to be 1.708. Suppose a six-sided die is rolled 31 times, and the sample mean is 1.82. The sample standard deviation is 1.508.

Fill in the blank with the correct symbol: _____ = 1.708

A. μ

B. n

C. p

D. z^*

E. $\hat{p}$

F. $\bar{x}$

G. σ

H. s

7. What happens to the width of a confidence interval when we decrease the sample size?

A. The confidence interval becomes wider.

B. The confidence interval becomes narrower.

8. The standard deviation of the volume of liquid in a 12 fluid-ounce soda can is known to be approximately $\sigma = 0.5$ milliliters. Suppose the volume of liquid of $n = 87$ soda cans is measured, and the sample mean is $\bar{x} = 355.575$ milliliters.

Find the margin of error of a 95% confidence interval for the mean volume μ contained in 12 fluid-ounce soda cans.

A. The margin of error for the 95% confidence interval is 0.125.

B. The margin of error for the 95% confidence interval is 0.155.

C. The margin of error for the 95% confidence interval is 0.075.

D. The margin of error for the 95% confidence interval is 0.095.

E. The margin of error for the 95% confidence interval is 0.175.

F. The margin of error for the 95% confidence interval is 0.065.

G. The margin of error for the 95% confidence interval is 0.105.

H. The margin of error for the 95% confidence interval is 0.085.