

Name: _____

Date: _____

Quiz 6 – B

1. Why do pollsters not use their expertise to just pick a representative sample—why do they bother with randomly sampling?
2. Explain the difference between bias and variability. Which is worse and why?
3. Explain the difference between a population distribution, a sample distribution, and a sampling distribution. Use an example, drawing sketches of each of the three distributions (you can make up your data, no worries).
4. A ± 2 standard error confidence interval for a measurement is also known as a ___% confidence interval. What is the percentage, and what does it mean?
5. A sample of 800 folks finds that $\hat{p} = 0.3$ in support of a new bill in Congress. What is the confidence interval for the true population proportion? Show your work.

6. A sample of 1,256 people finds they report $\bar{x} = 9.4$ for their Thanksgiving gathering size, with $s = 2.9$.

A. Explain the meaning of \bar{x} .

B. Explain the meaning of s .

C. What is the confidence interval for the true population average? Show your work.

7. Researchers want to conduct a poll of whether voters support a president's second term (yes or no). They want to have a margin of error of $\pm 3\%$. What sample size should they use?

8. Researchers report that the average number of D.V.D.s in households is (10.1, 14.3) from $n = 432$.

A. What is the sample's typical result?

B. What is the standard error of the sampling?

C. What is the sample's spread?

Quiz 6 – B – answer key

1. Expert sampling introduces bias. Although random sampling can be more variable, it doesn't introduce bias.
2. Bias is worse; it's a systematic error that misleads us as to what the signal is saying. Variability is simply noise; it obscures the signal a bit, but doesn't mislead us.
3. A population is all the people (or subjects) in a population. A sample is the group that's selected out of the population. A sampling distribution is all the possible samples one could generate from a population.
4. 95%. It tells us that 95% of possible samples taken using this method will capture the truth about the population.
5. (0.26, 0.34)
6.
 - A. X-bar is the average number of people that respondents reported at their Thanksgiving.
 - B. S is standard deviation of the number of people that respondents reported.
 - C. (9.24, 9.56)
7. 1,112
8.
 - A. 12.2
 - B. 1.05
 - C. 21.82