A telephone survey of is done to determine the average number of pets in the typical American family. Past experience has shown that 40% of those telephoned will refuse to respond to the survey.

1. In 100 independent calls, what is the probability that exactly 60 people respond?

(A) $\binom{100}{60}(0.40)^{60}(0.60)^{40}$

(B) $\binom{100}{40}(0.40)^{60}(0.60)^{40}$

(C) $\binom{100}{60}(0.40)^{40}(0.60)^{60}$

(D) None of the above

A telephone survey of is done to determine the average number of pets in the typical American family. Past experience has shown that 40% of those telephoned will refuse to respond to the survey.

2. How many calls do we expect to have to make before someone responds?

(A) 1.67

(B) 2

(C) 2.5

(D) None of the above

(You might need a calculator)

3. 7% of teenagers suffer from arachnaphobia. Given 10 randomly chosen teenagers, what is the probability that at most 1 suffers from arachnaphobia?

(A) 35%

(B) 50%

(C) 85%

(D) None of the above

A survey asks Colorado residents what percentage of their friends were born in Colorado.

4. The parameter of interest in this situation is a...

(A) Proportion

(B) Mean

A survey asks Colorado residents if they were born in Colorado.

5. The parameter of interest in this situation is a...

(A) Proportion

(B) Mean

6. Of all freshman at a large college, 16% made the dean's list in the current year. As part of a class project, students randomly sample 40 students and check if those students made the list. They repeat this 1000 times and build a distribution of sample proportions. What is the variance of this distribution?

(A) $0.16 \cdot 0.84$

(B) $0.16 \cdot 0.84/40$

(C) $0.16 \cdot 0.84/1000$

(D) None of the above

7. True or False?

A 50% confidence interval is wider than a 95% confidence interval.

8. Which of the following R commands would you use to find z^* for a 99% confidence interval?

(A) `pnorm(0.99)`

(B) `qnorm(0.99)`

(C) `qnorm(0.995)`

(D) None of the above

9. A poll conducted in 2013 found that 52% of U.S. adult Twitter users get at least some news on Twitter. The standard error for this estimate was 2.4%, and a normal distribution may be used to model the sample proportion. Construct a 99% confidence interval for the fraction of U.S. adult Twitter users who get some news on Twitter, and interpret the confidence interval in context.