Stat 1350, Confidence Intervals II, Spring 2015 Name KEY

Instructions: For each of the situations below, construct the appropriate confidence interval with the given level of confidence.

1. The student newspaper at a college asks a simple random sample of 250 undergraduates, "Do you favor eliminating supplemental fees for lab courses?" In all, 150 of the 250 are in favor of eliminating such fees. Find a 95% confidence interval not using the quick method.

by 1PropZInt:

(.53927, .66073)

$x = 150$
$n = 250$
C-level: .95

2. A recent Gallup Poll interviewed a random sample of 1523 adults. Of these, 868 bought a lottery ticket in the past year. Construct a 99% confidence interval for these results.

by 1PropZInt:

(.53725, .60261)

$x = 868$
$n = 1523$
C-level = .99

3. The weights for a population of North American raccoons have a bell-shaped frequency curve with a mean of about 12 pounds and a standard deviation of about 2.5 pounds based on sample size of 68. Construct ad 80% confidence interval and a 90% confidence interval. What do you notice about the two intervals?

by ZInterval: Stats

(11.611, 12.389)

$\sigma = 2.5$
$\bar{x} = 12$
$n = 68$
C-level: .8

4. A poll of 1234 adults found that 62% expect an increase in environmental pollution in the next decade. Take the poll's sample to be a simple random sample of all adults. What is an 98% confidence interval for these results?

by 1PropZInt:

(.64901, .7108)

$x = .62 * 1234 = 839.12 \Rightarrow 839$ (must be whole #)
$n = 1234$
C-level: .98

5. In a simple random sample of 144 households in a county in Virginia, the average number of children in these households was 3.62 children. The standard deviation from this sample was 2.40 children. What is a 90% confidence interval for these results? What does it mean in the context of the problem?

by ZInterval: Stats

$\sigma = 2.40$
$\bar{x} = 3.62$
$n = 144$
C-level: .90

(3.291, 3.949)

We are 95% sure that households in Virginia average between 3.29 and 3.95 children per household

6. Suppose that a simple random sample of 100 men in Richmond were asked how much money they spent per visit at the barbershop. The responses resulted in a mean of $21.43 and a standard deviation of $7.84. Calculate a 95% confidence interval for these results.

by ZInterval: Stats

$\sigma = 7.84$
$\bar{x} = 21.43$
$n = 100$
C-level: .95

(19.893, 22.967)

7. Redo the problem above but find a 99% confidence interval, and assume the data came from a sample size of 172 men. What do you notice about the two intervals? What can you conclude from this?

by ZInterval: Stats

$\sigma = 7.84$
$\bar{x} = 21.43$
$n = 172$
Clevel: .99

(19.89, 22.97)

the intervals are almost identical