MAT 135, Quiz #12, Spring 2016 Name KEY

Instructions: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. The standard error for the sampling distribution of a proportion is given by $\sigma_p = \sqrt{\frac{p(1-p)}{n}}$. If the proportion $p = \frac{5}{12}$, what is the standard error for a sampling distribution with a sample size of 200?

$$\sigma_p = \sqrt{\frac{\frac{5}{12}\left(\frac{7}{12}\right)}{200}} = .0348$$

3.5%

2. Why are confidence intervals preferred over point estimates?

Confidence intervals provide information on the quality of the estimate (precision and reliability) that a single point estimate cannot.

3. A sample of 50 women is taken and their mean height is found to be 64.3 inches with a standard deviation of 3.2 inches. Find the 90% confidence interval.

T-Interval (Stats)
$\bar{x} = 64.3$
$S_x = 3.2$
$n = 50$
C-level: .90

(63.541, 65.059)

4. Would the 99% confidence interval be wider or narrower? wider

5. Would the confidence interval for a sample of 250 people be wider or narrower?

narrower