Math 345 Elementary Statistics **20 April 2011**
Quiz 4 **Crawford**
Name: _____

Books and notes (in any form) are not allowed. *Show all your work.* Good Luck!

1. (4 pts) Nielson Media Research wants to estimate the mean amount of time (in hours) that full-time college students spend watching television each weekday.

(a). If students typically watch between 0 and 7.5 hours of television each, day use the range rule of thumb to estimate the population standard deviation.

(b). Using part (a), how many students must be surveyed to estimate the population mean within 0.25 hour (ie. 15 min) margin of error and a 96% confidence interval.

2. (4 pts) Suppose you want to construct a confidence interval for the population mean using the information given below. Determine (a) whether the normal distribution applies and find $z_{\alpha/2}$, OR (b) whether the Student-t distribution applies and find $t_{\alpha/2}$, OR (c) whether neither distribution applies. [Do NOT find the actual confidence interval.]

$95\%; n = 50; \sigma$ is unknown; population appears to be skewed.

3. (7 pts) An important issue facing Americans is the large number of medical malpractice lawsuits and the expenses that they generate. In a study of 1228 randomly selected medical malpractice lawsuits, it is found that 856 of them were later dropped or dismissed (based on data from the Physician Insurers Association of America).

(a). What is the best point estimate for the proportion of medical malpractice lawsuits that are dropped or dismissed?

(b). Construct a 99% confidence interval for the proportion p of medical malpractice lawsuits that are dropped or dismissed. [Write your answer in the form: lower limit $<$ parameter $<$ upper limit.]