Pledge:

2/18/05 MATH 271 - Applied Stats Name:_____
Dr. Lunsford Quiz 4 (20 points possible)

I. A health care professional wishes to estimate the average birth weight, μ, in ounces, of infants. From previous studies, she believes that birth weight is normally distributed and has a standard deviation of 8 ounces. Please answer the following:

(a) What is the smallest sample she can select if she desires to be 92% confident that μ is within ± 3 ounces of the sample mean? (3 points)

(b) Suppose she selects a random sample of 25 infants and determines that their average weight is 112 ounces. Find a 92% confidence interval for μ. Clearly indicate what type of interval you are finding and why. (4 points)

(c) Write both a probability statement and an English statement using the information in your confidence interval from part (b). (4 points)

II. Thirteen tons of cheese are stored in some old gypsum mines, including cheese wheels with a 22.5-pound label weight. A random sample of 9 of these wheels yielded the following weights in pounds:

21.50	18.95	18.55	19.40	19.15
22.35	22.90	22.20	23.10	

Assuming that the weight is normally distributed, please answer the following:

(a) Use the data to find a point estimate for μ, the average weight of the cheese wheels with the 22.5-pound label weight. (2 points)

(b) Find a 95% confidence for μ. Clearly indicate what type of interval you are finding and why. (4 points)

(c) Complete the following: We are _____% sure that the maximum error of our estimate of the average weight of the cheese wheels with the 22.5-pound label weight is _____ounces. We are (circle one below)

very unsure somewhat unsure somewhat sure very sure

that our label weight of 22.5-pounds is accurate for these cheese wheels. (3 points)