Homework Week 3

Please show ALL your work when submitting your homework and show your work completely. Round to two or four decimal places for your final answer. **Turn in your homework at the beginning of class. Late assignments will NOT be accepted.**

1. (3 pts) When a boba tea shop's delivery process is operating correctly, boba teas are delivered in an average of 45 minutes with a standard deviation of 6 minutes. To monitor its delivery process, the restaurant randomly selects 15 boba teas each night and records their delivery times. Assume that the population of all delivery times on a given evening is normally distributed.
    a. Explain why we can use such a small sample size in this calculation.

2. (4 pts) A population is normally distributed and is believed to have a mean of 21.20 and standard deviation 3.6
    a. What is the probability of taking a sample of size 10 and getting a sample mean of 22.4 or more?

3. (6 pts) According to an internal survey conducted at your company, 95% of managers believe that most people only work 4 hours a day, previous survey results indicate that only t 48% of people were only working 4 hours a day. Suppose that the computers of 200 employees are tracked.
    a. What is the probability that fewer than 96 are working only 4 hours a day?
    b. Please interpret your results.

4. (4 pts) Suppose new construction housing in Southwest Florida contains 1,200 new condos. A sample of 100 condos is selected randomly and an appraisal is performed. If the mean appraised value of these condos is $176,000 and has a standard deviation of $8,300, what is the probability that the samples average price is greater than $184,000?