STAT 269 - Quiz 6 Practice

Recall the example from the previous quiz: an aid agency is packaging bags of seeds for distribution in a community where farmers have been unable to save enough seeds to plant crops this year. Rather than just giving them food, the agency wants to give each farmer a 10 pound bag of seed. The bags are filled automatically by a machine. Suppose that the actual weight of a randomly chosen bag varies according to a normal distribution with a mean of 10.2 lbs and a standard deviation of .5 lbs. For this quiz, consider a collective of 10 farmers, each of whom receive a randomly chosen bag of grain from the aid agency.

1. What is the probability that the average of the ten bags received will be less than 10 lbs?

2. What is the probability that the average of the ten bags received will be more than 10.2 lbs?

3. What is the probability that the average of the ten bags received will be between 10 and 10.5 lbs?

4. If the values found by the aid agency are correct, how heavy would the average need to be for the group to have an average that is in the top 10% of all averages for ten randomly chosen bags?