

Quantitative Methods I
Fall 2009
Homework, Week 5
Due 10/06/09

Show all work, and all equation set-ups, even if you use a calculator to compute final numbers.

For questions 1-3, assume the scores of a Civil Service exam are normally distributed with a mean of 180 and a standard deviation of 25. Please show all work, and use the z-distribution table found inside the back of your textbook to answer the following questions. (9 points)

1. What is the probability that a single draw (test score) from this distribution, labeled X, will be greater than 210?
2. What is the probability that a single draw from this distribution, labeled Y, will be less than 182?
3. What is the probability that a single draw from this distribution, labeled Z, will be between 160 and 192?

For questions 4-5, assume the scores on a homework assignment given in class are normally distributed with a mean of 35 and a *variance* of 25. Please show all work, and use the z-distribution table found inside the back of your textbook to answer the following questions. (6 points)

4. What is the value that sits at or closest to the 25th percentile of this distribution?
5. What is the probability that a single draw from this distribution, labeled K, will be either between 25 and 28 or between 34 and 39?

For questions 6-7, assume the bushels of palm per farmer in the total palm harvest in Nigeria is normally distributed with a mean of 120 and a variance of 15. Please show all work, and use the table found inside the back cover of your textbook. Please show all work, and use the z-distribution table found inside the back of your textbook to answer the following questions. (6 points)

6. You are instructed to shut down 10% of these farms, and you choose to shut down the lowest-producing farms. What is the production amount below which a farm will have to shut down?
7. You must give a bonus to the farms that produce in the top 15%. At what amount of production will a farm be given the bonus?

From MBB, please complete problem 8.4