

Pledge:

9/19/2006
Dr. Lunsford

MATH 171
Quiz 4

Name: _____
20 Points Possible

Researchers measured the time (in minutes) it took nineteen subjects from Group A to complete a task. Below are the times and a histogram of the times. For your convenience the times are given in ascending order. Please answer the following questions.

3.4, 3.6, 4.5, 4.9, 6.2, 6.7, 7.1, 7.7, 7.9, 8.3, 8.8, 9.1, 9.3, 10.4, 10.7, 13.3, 13.6, 13.8, 15.2

(a) Find the sample mean and sample standard deviation of this data. (3 points)

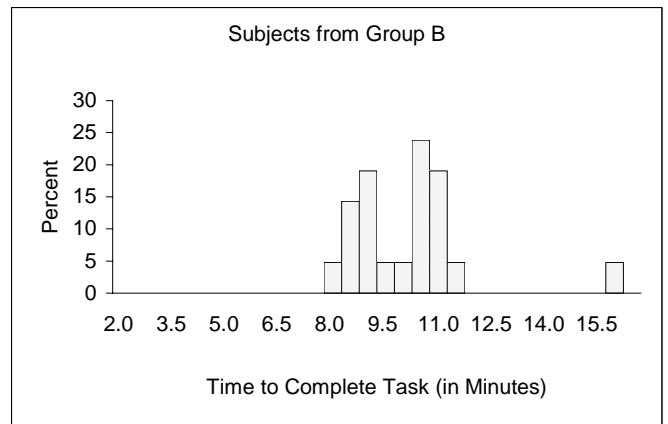
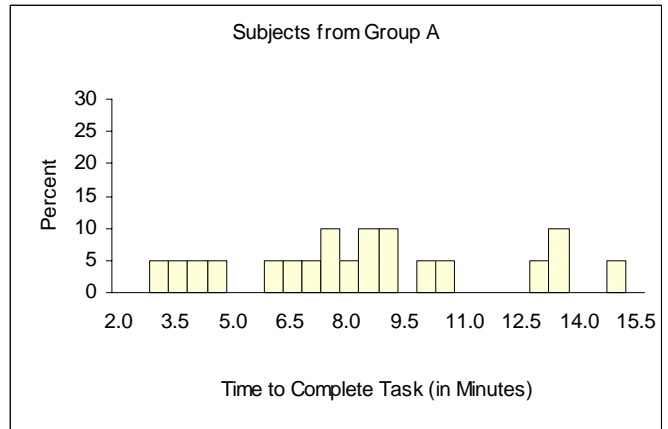
Sample mean =

Sample Standard Deviation =

(b) Below you are given a histogram of the times it took for subjects in Group B to complete the task. Both histograms are on the same scales. Which Group had the most variability in their times to complete the task? (1 point)

(c) Which Group has the *smallest* sample standard deviation? Why? (2 points)

(d) The researchers decided to model the time it takes for people from a certain population to complete the task using a normal distribution with a mean of 10 minutes and a standard deviation of 3 minutes. Draw a graph of this density curve. Please be sure to label your horizontal axis and to clearly mark the data values that are $\pm 1\sigma$, $\pm 2\sigma$, and $\pm 3\sigma$ from the mean. (5 points)



(e) According to the normal model, what percent of people in the population would you expect to take less than six minutes to complete the task? Clearly represent this percent on your graph in part (d) above. Also, please show all calculator input. (3 points)

(f) Using the normal model, what completion time corresponds to a standardized score (i.e. z -score) of -1.35 ? (2 points)

(g) Suppose Trish completed the task in 20 minutes. Using the normal model, you would describe her performance on this task as: (circle one) (1 point)

Much faster than average

Faster than average

About average

Slower than average

Much slower than average

(h) Using the normal model, what completion times would indicate that a person was among the *slowest* 10% of people in completing the task? Please show all calculator input. (3 points)