201 Sample Problems
Descriptive Statistics

1. 15, 18, 21, 22, 26, 28, 31, 39 (Population)
   a. Mean-
   b. Median-
   c. Sum of squares-
   d. Variance-
   e. Standard deviation-
   f. Convert the raw scores of 15 and 39 to standard scores.
   g. Convert the raw scores of 15 and 39 to percentile scores.

2. 145, 136, 198, 115, 128, 156 (Sample)
   a. Mean-
   b. Median-
   c. Sum of squares
   d. Variance
   e. Standard Deviation-

3. 35, 48, 53, 69, 72, 81 (Sample)
   a. Mean
   b. Median-
   c. Sum of squares
   d. Variance
   e. Standard deviation-
4. What percent of scores fall between -.59 and .67?

5. What percent of scores fall between 1.1 and 2.3?

6. What percent of scores fall between -.35 and -.76?

7. A professor does not want his students to fail his class, so he is going to add three points to the lowest 10% of test scores. The mean test score is 145 and the standard deviation is 21. What is the lowest test score you can receive to get the extra three points?

8. A researcher is studying reaction times. She believes that 6% of scores farthest from the mean are due to error. The mean reaction time is 6 and the standard deviation is .3. What are the highest and lowest reaction times that will be eliminated?

9. The mean of a set of scores is 89 and the standard deviation is 12. What percent of scores fall between the raw scores of 76 and 93? What percent of scores fall between the raw scores of 83 and 97?

10. The top 2% of students in a math class are selected to go into an accelerated math class. The mean grade is 85 and the standard deviation is 5. What is the lowest grade a person could receive and still get into the accelerated math class?

11. A clothing store needs to fire some employees. They decide to fire the employees who are selling at the bottom 15% of all sales people for the store. The mean total is $430 a day sold, with a standard deviation of $50. What is the least amount that a sales person can sell and still remain employed?
1. 15, 18, 21, 22, 26, 28, 31, 39 (Population)
   
   h. Mean-25  
   i. Median-24  
   j. Sum of squares-411  
   k. Variance-51.375  
   l. Standard deviation-7.16

2. 145, 136, 198, 115, 128, 154 (Sample)
   
   a. Mean-146.33  
   b. Median-140.5  
   c. Sum of squares-4189  
   d. Variance-837.88  
   e. Standard Deviation-28.95

3. 35, 48, 53, 69, 72, 81 (Sample)
   
   a. Mean-59.67  
   b. Median-61  
   c. Sum of squares-1456.34  
   d. Variance-291.27  
   e. Standard deviation-17.07

4. What percent of scores fall between -.59 and .67?  
   $22.84% + 24.86% = 47.1%$

5. What percent of scores fall between 1.12 and 2.30?  
   $48.93% - 36.43% = 12.5%$

6. What percent of scores fall between -.35 and -.76?  
   $27.64 - 13.68 = 9.96%$

7. A professor does not want his students to fail his class, so he is going to add three points to the lowest 10% of test scores. The mean test score is 145 and the standard deviation is 21. What is the lowest test score you can receive to get the extra three points?  
   
   $Z = -1.28; \ X = 118.12$
8. A researcher is studying reaction times. She believes that 6% of scores farthest from the mean are due to error. The mean reaction time is 6 and the standard deviation is .3. What are the highest and lowest reaction times that will be eliminated?

High- 6.564, low- 5.436

9. The mean of a set of scores is 89 and the standard deviation is 12. What percent of scores fall between the raw scores of 76 and 93? What percent of scores fall between the raw scores of 83 and 97?

% between 76 and 93 = 48.92
% between 83 and 97 = 44.01

10. The top 2% of students in a math class are selected to go into an accelerated math class. The mean grade is 85 and the standard deviation is 5. What is the lowest grade a person could receive and still get into the accelerated math class?

Z = +2.05; X = 95.25

11. A clothing store needs to fire some employees. They decide to fire the employees who are selling at the bottom 15% of all sales people for the store. The mean total is $430 a day sold, with a standard deviation of $50. What is the least amount that a sales person can sell and still remain employed?

Z = -1.04; X = $378 per day