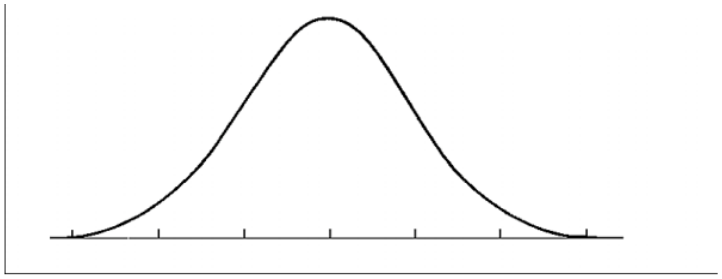
Name: _____ Date: _____

Prob_Stats Empirical Rule Worksheet

The Empirical Rule for Normal Distributions (a.k.a. the 68-95-99.7 Rule)

1. Suppose the scores on a test are normally distributed, that the mean score is 80 and the standard deviation is 7. Draw a normal curve to represent this scenario.



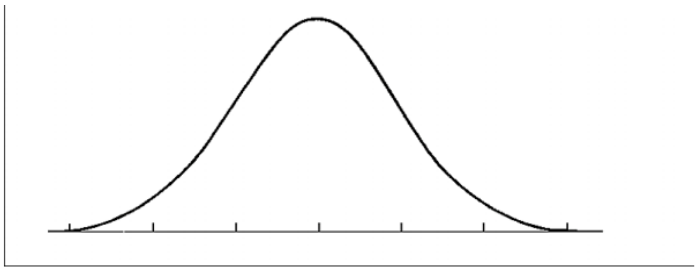
   a. What percent scored less than 87?

   b. What percent scored less than 73?

   c. What percent scored more than 94?

   d. 2.5% scored less than what value?

2. Given the times required for a group of students to complete the physical fitness obstacle course result in a normal curve, and that the mean time 21 minutes and the standard deviation is 4.



   a. What percent took longer than 29 minutes?

   b. What percent took less than 29 minutes?

   c. What percent took between 13 and 29 minutes?

   d. What percent took between 13 and 25 minutes?

   e. What percent took longer than 17 minutes?

3. A set of data with a normal distribution has a mean of 50 and standard deviation of 10.

   a. 68% of the data is between what two numbers?

   b. 95% of the data is between what two numbers?

4. A set of data with a normal distribution has a mean of 35 and standard deviation of 5.

   a. 68% of the data is between what two numbers?

   b. 95% of the data is between what two numbers?

   c. About what percent of the population (data) is above 40?

5. A set of data with a normal distribution has a mean of 16.4 and standard deviation of 3.2.

   a. 68% of the data is between what two numbers?

   b. 95% of the data is between what two numbers?

   c. What percent of the data is below 13.2?

6. A set of data with a normal distribution has a mean of 120 and standard deviation of 15.

   a. 2.5% of the data is above what value?

   b. 16% of the data is below what value?

   c. What percent of the data is above 135?

   d. What percent of the data is below 90?