Name: _____   Date: _____   Class: _____

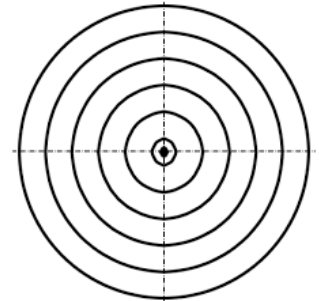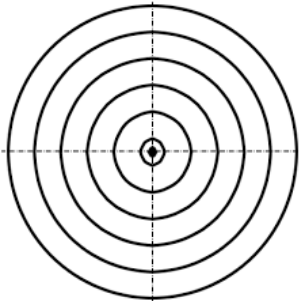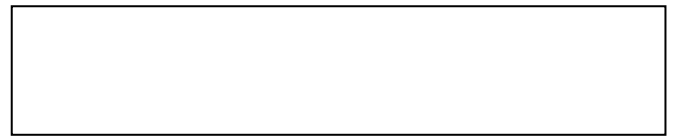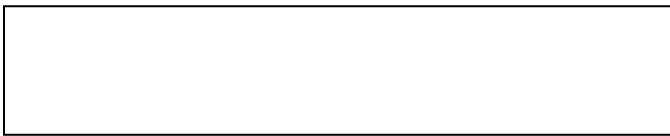# The Normal Distribution and the Standard Deviation

Normal Distribution: A probability distribution modeled by a _____ _____ (also called a normal curve) that is _____ about the _____.

The standard deviation is a measure of _____.

The symbol for the population standard deviation is _____ (the Greek letter sigma).
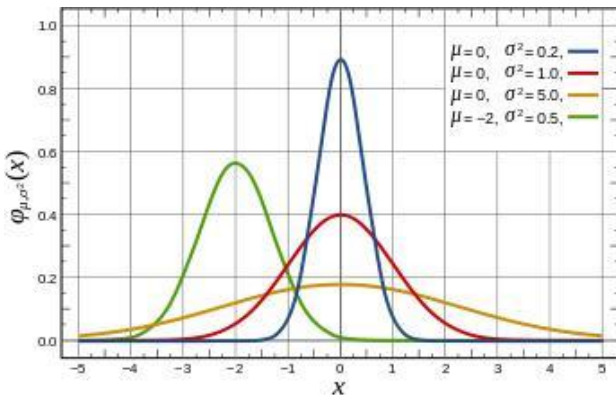
In a normal distribution, the _____ the standard deviation, the "_____" the distribution, as shown in this picture.

As the standard deviation _____, the values in the distribution are clustered more closely around the mean, so the distribution appears "_____."

The Empirical Rule

Knowing that the values in a set are approximately normally distributed allows you to get a feel for how scarce or common a particular value might be in that set.

68%
95%
99.7%
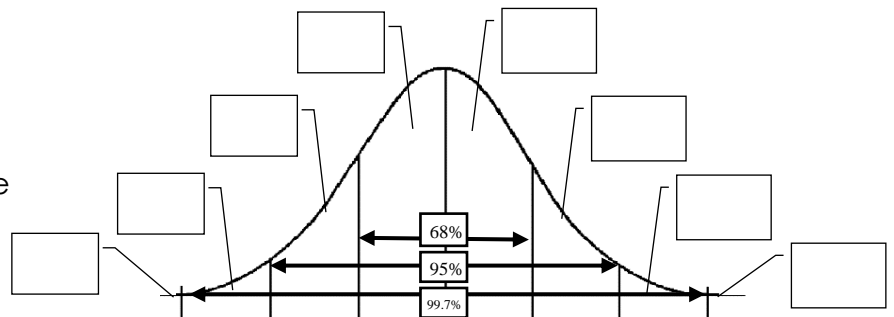
Examples

1. Human height is commonly considered an approximately normally distributed measure. If the mean height of a male adult in the U.S.A. is 5'10", with a standard deviation of 1.5", how common are men with heights greater than 6'1"?
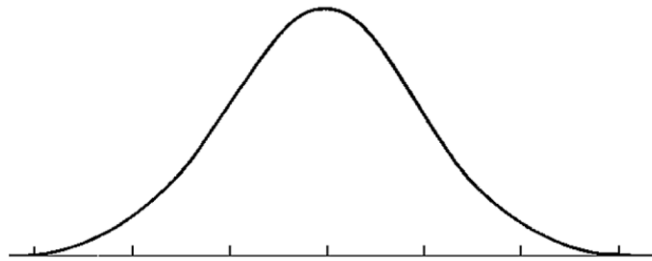
2. If the fuel mileage of a particular model of car is normally distributed, with a mean of 26 mpg and a standard deviation of 2 mpg, how common are cars with a fuel efficiency of 22 to 26 mpg?

3. If the maximum jumping height of U.S. high school high jumpers is normally distributed with a mean of 5'11" and a SD of 2", how unusual is it to see a high school jumper clear 6'3"?