

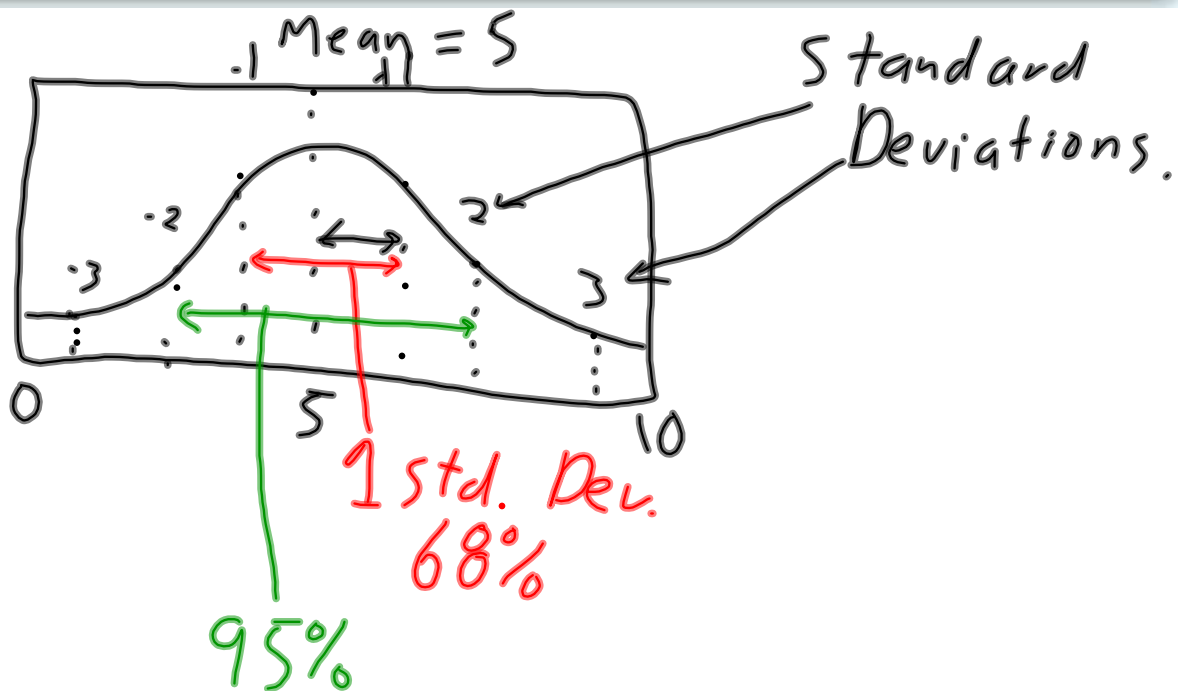
## Normal Distributions or Bell Curves

**take note** **Key Concept Normal Distribution**

In a normal distribution,

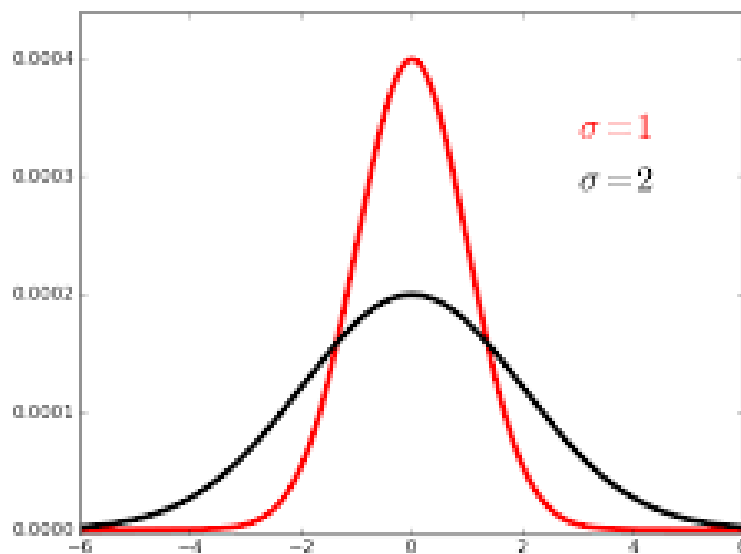
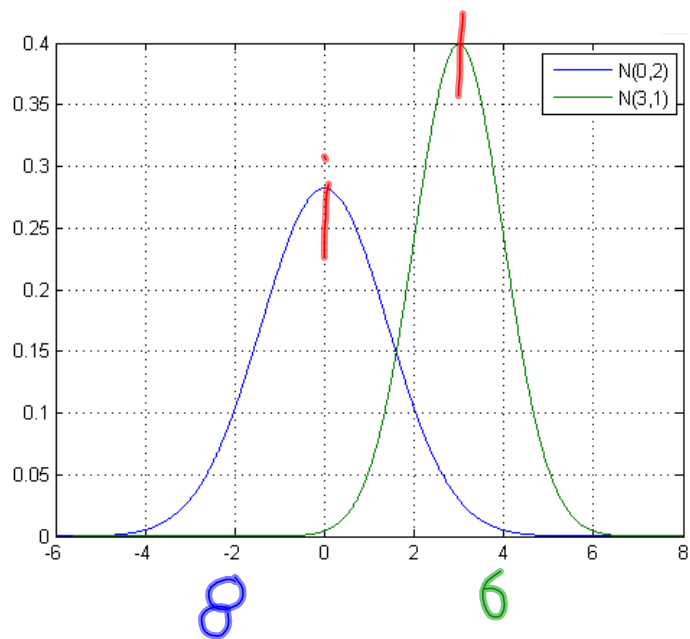
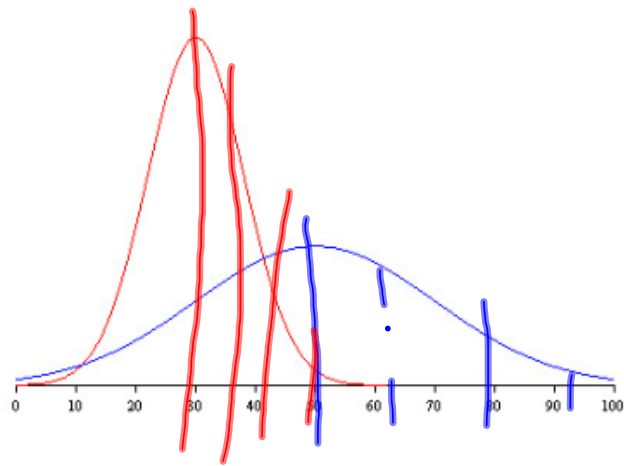
- 68% of data fall within one standard deviation of the mean
- 95% of data fall within two standard deviations of the mean
- 99.7% of data fall within three standard deviations of the mean

A normal distribution has a symmetric bell shape centered on the mean.



EXAMPLE 1:

- a) Which normal curve has the greater mean?
- b) Which normal curve has a greater standard deviation?

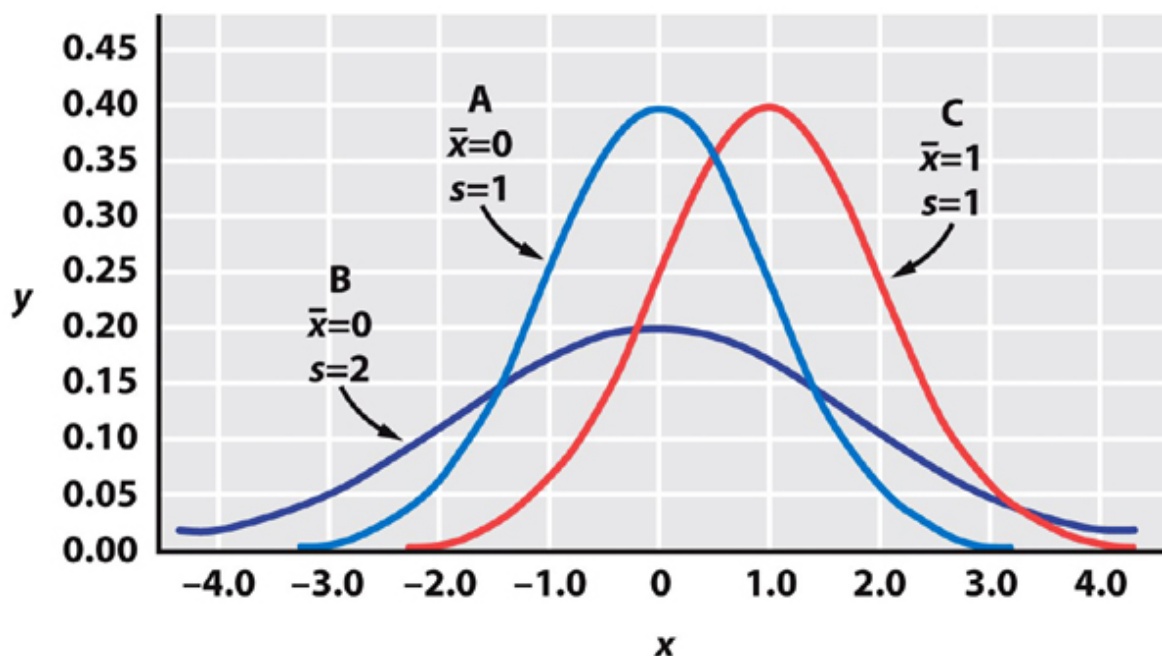


What do you notice as the standard deviation increases?

What do you notice as the standard deviation decreases?

What do you notice as the mean increases?

What do you notice as the mean decreases?





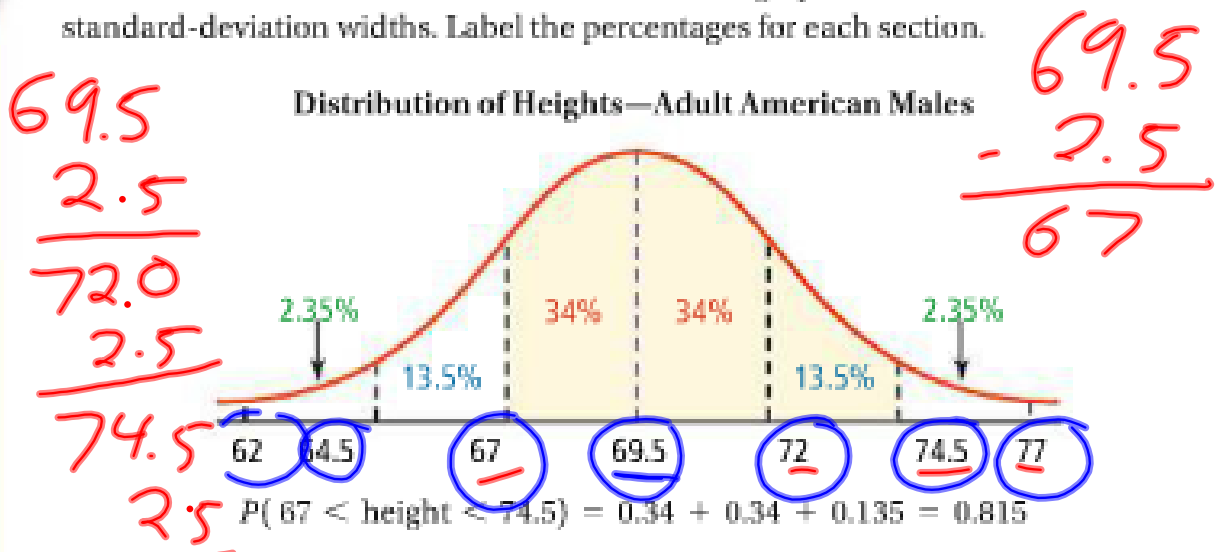
$$\begin{array}{r}
 20 \\
 17 \\
 18 \\
 \hline
 55\%
 \end{array}$$

- 1) What percent of bags weigh 49.9lb and 50.1lb
- 2) What percent of bags weigh less than 49.8lb

The heights of adult American males are approximately normally distributed with mean 69.5 in. and standard deviation 2.5 in.

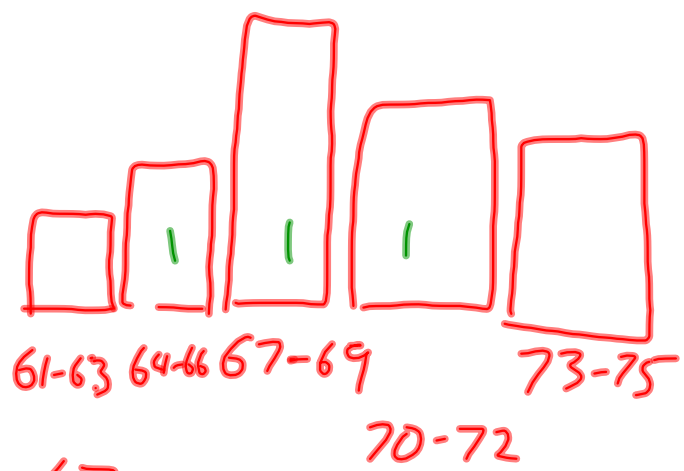
**A** What percent of adult American males are between 67 in. and 74.5 in. tall?

Draw a normal curve. Label the mean. Divide the graph into sections of standard-deviation widths. Label the percentages for each section.



About 82% of adult American males are between 67 in. and 74.5 in. tall.

Handwritten percentages:  
 34%  
 34%  
 13.5%  
81.5%



4) 61-67

5) 64-75

