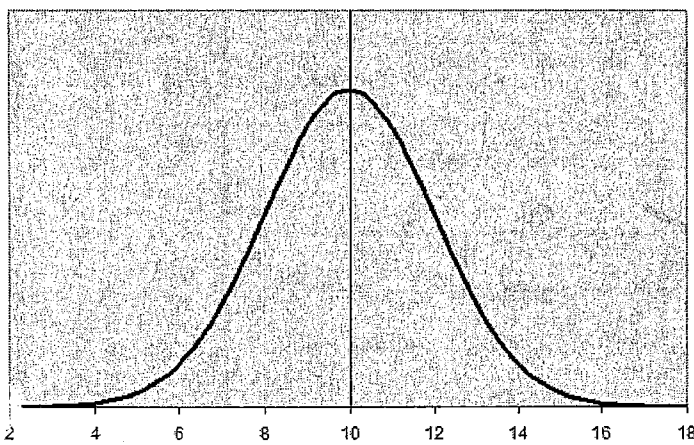
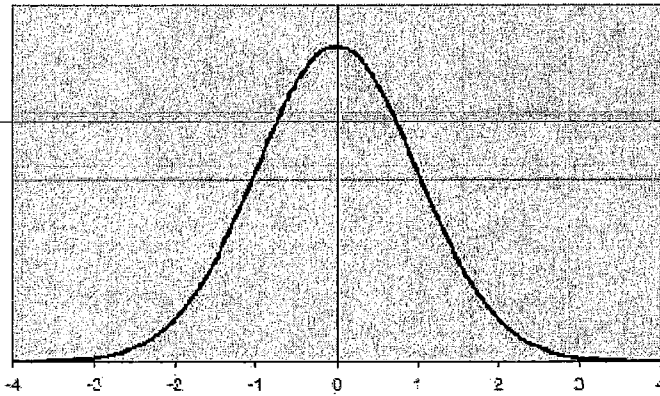
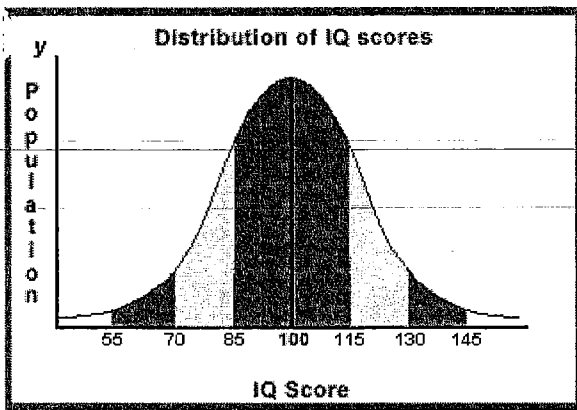


## Standard Deviation

Standard Deviation measures the spread of a data set. It allows us to describe how data is dispersed according to a normal distribution.



Standard deviation can be labeled as  $S_x$  for a sample or  $\sigma_x$  for a population.

### Standard Deviation Algorithm.

1. find the mean for  $n$  data values
2. determine the deviation score for each data value (how far from the mean is each data value)
3. square each deviation value
4. add up all the squared values ( $d^2$ )
5. divide by either  $(n - 1)$  for a sample or divide by  $(n)$  for a population
6. find the square root...  
you have found the standard deviation for your data set

<b>x</b>		
34		
27		
44		
41		
44		
43		
47		
48		
50		

population data

x		
60		
71		
73		
74		
64		
67		
68		
67		
70		
70		
71		
67		

sample data

x		
21		
23		
16		
29		
32		
24		
25		
30		
28		
26		
20		
21		
22		
26		
29		

population data

x		
207		
160		
132		
157		
181		
117		
147		
153		
141		
151		
159		

sample data

x		
73		
81		
44		
96		
88		
90		
91		
87		

sample data

$\bar{x}$  is read x-bar and is the sample mean

$\mu$  is read *mu* and is the population mean

$$\text{standard deviation} = \sqrt{\text{variance}}$$

$$\text{variance} = (\text{standard deviation})^2$$