Section 3.3
Measures of Dispersion

standard deviation

$$\sigma = \sqrt{\dfrac{\sum\limits_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$$

μ $\quad$ Mean $= \dfrac{\Sigma fx}{\Sigma f}$

Variance, $\sigma^2 = \dfrac{\Sigma fx^2}{\Sigma f} - \left(\dfrac{\Sigma fx}{\Sigma f}\right)^2$

$$\bar{x} = \dfrac{w_1 x_1 + w_2 x_2 + \cdots + w_n x_n}{w_1 + w_2 + \cdots + w_n}.$$

$$S = \sqrt{\dfrac{\Sigma(X - \bar{X})^2}{N}}$$

where S = the standard deviation of a sample,
Σ means "sum of,"
X = each value in the data set,
$\bar{X}$ = mean of all values in the data set,
N = number of values in the data set.

34% $\quad$ 34%

2.35% $\qquad\qquad\qquad\qquad$ 2.35%

0.15% $\quad$ 13.5% $\qquad\qquad$ 13.5% $\quad$ 0.15%

$\mu-3\sigma$ $\quad$ $\mu-2\sigma$ $\quad$ $\mu-\sigma$ $\qquad$ μ $\qquad$ $\mu+\sigma$ $\quad$ $\mu+2\sigma$ $\quad$ $\mu+3\sigma$ $\quad$ $x \rightarrow$

-3 $\quad$ -2 $\quad$ -1 $\quad$ 0 $\quad$ 1 $\quad$ 2 $\quad$ 3