1. Using the bike commuting time data (6 days), calculate the standard deviation and variance.

Commuting Time (min): 44.5 45.0 48.0 47.0 49. 5 46.0

Steps for calculating the standard deviation s:

1. Compute the mean $\bar{x}$

$$\bar{x} = \frac{44.5 + 45.0 + 48.0 + 47.0 + 49.5 + 46.0}{6} =$$

2. For each data value, compute $x - \bar{x}$.

3. Square all values computed in Step 2.

4. Sum all of the squared values in Step 3.

x	$x - \bar{x}$	$(x - \bar{x})^2$
44.5		
45.0		
48.0		
47.0		
49.5		
46.0		

5. Divide the sum from Step 4 by $n - 1$
[Note: This is the variance.]

6. Take the square root of the value in Step 5 to find the standard deviation.

Summary:

Is there an easier way?

2. Compute the standard deviation for the customer waiting times using the data from the previous worksheet for the

(a). Multi-line data: 5, 10, 3, 15, 2

(b). Single-line data: 7, 8, 7, 8, 5

3. Given the data set $3, 5, 4, 2, 5, 3, 4, 2$, find the mean, range, standard deviation, and variance.

4. Given the data set $3, 5, 4, 2, 5, 3, 4, 2, 67$, find the mean, range, standard deviation, and variance.

Which of the measures (range, standard deviation, and variance), if any are resistant to outliers?

5. While training for a triathlon, a recreational athlete determines that she averages 10 minute miles with a standard deviation of 0.25 minute. She also averages 23 laps per 1/2 hour with a standard deviation of 1 lap. In which of these sports is she more consistent?

How can we make a comparison between these two measurements that are so different (minutes vs. laps)?

Homework [Slight change from assignment sheet]
Section 3.2, p. 107: #5, 7[Use formula 3-4 on p. 99], 11, 15, 19, 21, 23, 27[Also do #27 in 3.1], 31, 36