

Lesson 7-2&3

Objective- To solve problems involving data analysis and measures of central tendency.

Data Analysis

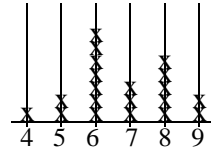
- 1) Range
- 2) Measures of Central Tendency
 - Mean
 - Median
 - Mode

$$\text{Range} = \text{Highest Value} - \text{Lowest Value}$$

Organizing Data

5 6 6 7 8 8 7 9 4 6
6 5 8 6 7 8 6 6 9 8

Line Plot



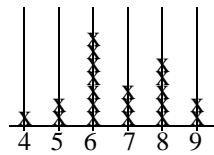
Frequency Table

4	
5	
6	
7	
8	
9	

Organizing Data

5 6 6 7 8 8 7 9 4 6
6 5 8 6 7 8 6 6 9 8

Line Plot



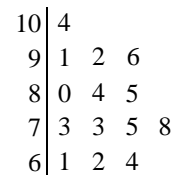
Frequency Table

4	I
5	II
6	IIII II
7	III
8	IIII
9	II

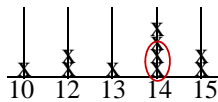
Organizing Data

78 73 64 85 91 104 62
80 92 75 84 73 61 96

Stem-Leaf Plot



Use the line plot below to find the following:



$$\text{Mean} = \frac{\text{sum}}{\#} = \frac{133}{10} = 13.3$$

$$\text{Median} = \frac{14 + 14}{2} = 14$$

$$\text{Mode} = 14$$

$$\text{Range} = \text{High} - \text{Low}$$

$$15 - 10 = 5$$

Find the mean, median, mode.

33 103 27 33 17 12 20
 12 17 20 27 33 33 103

$$\text{Mean} = \frac{\text{sum}}{\#} = \frac{245}{7} = 35$$

Outlier- a value that is much greater or much less than most of the other numbers.

Median = Middle of the Numbers

$$27$$

Mode = Number which Occurs Most Often

$$33$$

Lesson 7-2&3 (cont.)

Find the mean, median, and mode.

72 89 62 72 97 94
 62 72 72 89 94 97

$$\text{Mean} = \frac{486}{6} = 81$$

$$\text{Median} = \frac{72 + 89}{2} = 80.5$$

$$\text{Mode} = 72$$

Outlier ? No

Use the stem-leaf plot below to find the following:

6	0 1	Mean = $\frac{\text{sum}}{\#} = \frac{691}{16} \approx 43.2$
5	2 3 6 8	Median = $\frac{44 + 44}{2} = 44$
4	0 3 4 4 5	Mode = 25 and 44
3	1 2	Range = High - Low
2	2 5 5	$61 - 22 = 39$

Selecting the Best Measures of Central Tendency

Which measure do you choose when describing a data set?

The measure that is most useful to the situation.

Mean - Best when numbers are evenly spread.
 No outliers!

Median - Best when groups of numbers are clustered.
 Outliers exist!

Mode - Best when a specific value occurs most
 and overwhelms all others.

John is going to buy an mp3 music player. He found the prices for 7 players. What are the mean and median of this data set?

81 200 27 93 67 42 50
 27 42 50 67 81 93 200

$$\text{Mean} = \frac{\text{sum}}{\#} = \frac{560}{7} = 80$$

$$\text{Median} = 67$$

Since \$200 is an outlier the mean is not a good choice. The median \$67 is the most useful choice.

This list shows the number pieces of pizza Sue eats each week for 8 weeks

8 7 8 4 0 8 5 8
 0 4 5 7 8 8 8 8

What are the mean and median of this data set?

$$\text{Mean} = \frac{48}{8} = 6 \quad \text{Mode} = 8$$

$$\text{Median} = \frac{8 + 7}{2} = 7.5$$

What is the most likely number of pieces of pizza that Sue will eat in a week? 8 pieces