



**Math Virtual Learning**

# **Algebra IIB**

**The Data Unit - Describing Numerical Data**

**April 28, 2020**

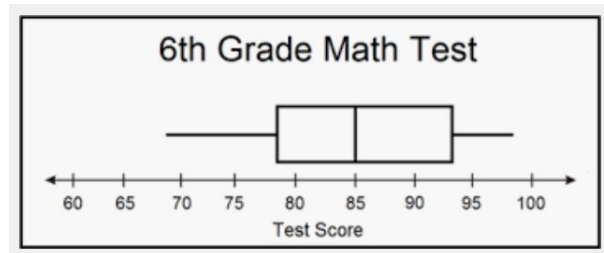
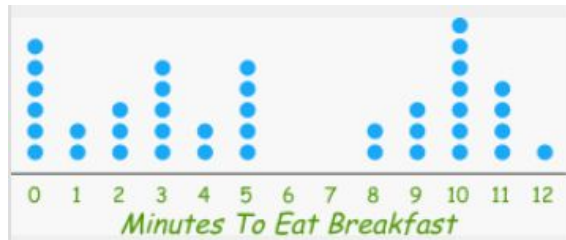


Algebra IIB  
Lesson: April 28, 2020

**Objective/Learning Target: Students will locate measures of center from tables or graphs**

# Let's Get Started:

When we have a set of data, one of the most important pieces of information we can find is the center of the data. This gives us our “typical” or “expected” value. Look at the 4 graphs. What do you think is the number that is in the center of each data set? Does it describe the expected value?

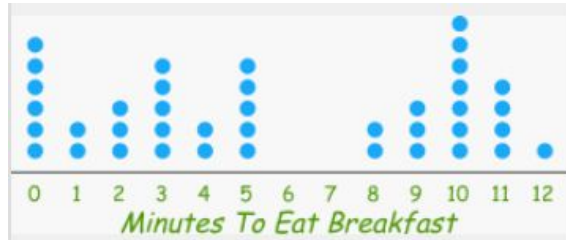
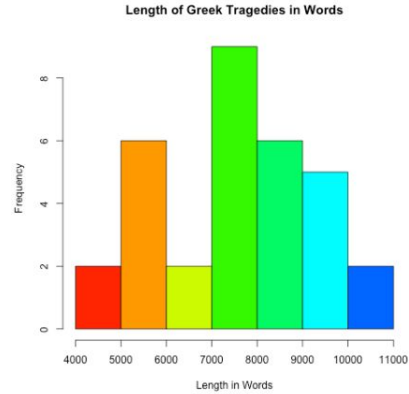


## Race Running Times in Seconds

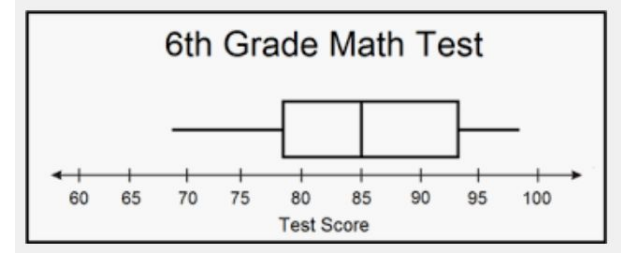
Stem	Leaves
12	2 6
13	0 2 5
14	1 2 4 6
15	2 3 7 8
16	1 2 4 6 8
17	5 7 8
18	1 3

Key:  $14 \mid 2 = 14.2$  seconds

# Describing Center



The histogram's center is somewhere in the green bar. The box plot's center looks like it is at 85. The dot plot's center looks like it is at 6 or 7 which doesn't make sense since there are no dots on those 2 numbers. The stem-and-leaf's center could be in the 160s or it could be 157.



## Race Running Times in Seconds

Stem	Leaves
12	2 6
13	0 2 5
14	1 2 4 6
15	2 3 7 8
16	1 2 4 6 8
17	5 7 8
18	1 3

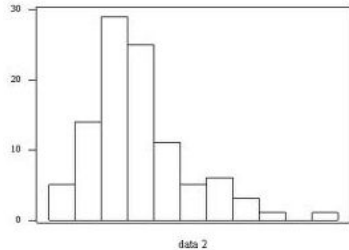
Key: 14 | 2 = 14.2 seconds

# Describing Center

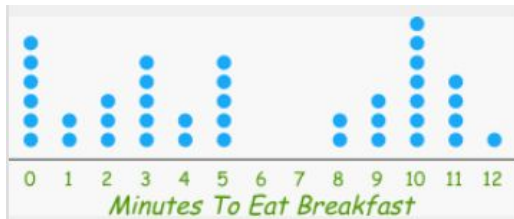
Describing Center can be tricky! There are 3 main ways to describe center: the **MEAN**, the **MEDIAN**, and the **MODE**. Which one you use to describe the center of your data depends on the **SHAPE** of your graph:



**Graph is symmetrical** - use the **MEAN**. On a box plot the line down the middle is the median. On a symmetrical graph the mean and median are approximately the same.



**Graph is skewed** - use the **MEDIAN**. Skewed means that the highest point on the graph is obviously not in the middle.



**Graph doesn't have an obvious center** - use the **MODE**. Sometimes data will have more than one mode. This is the least used measure of center

# MEAN

Mean is the AVERAGE of the entire data set.

To find the mean ADD together the data set then DIVIDE by the number of numbers in the data set.

**Example:** What is the MEAN of 23, 46, 14, 22, 28 and 17?

There are 6 numbers in the data set so

$$(23+46+14+22+28+17)/6= 25$$

# MEDIAN

Median is the MIDDLE NUMBER of the entire data set.

To find the median, put the numbers in order from smallest to largest. Carefully mark off numbers from both ends until you find the middle number.

**Example 1:** What is the MEDIAN of 15, 38, 22, 28 and 20?

Put the numbers in order: 15, 20, 22, 28, 38

Cross off numbers from both ends: 15, 20, 22, 28, 38

The median is 22

Sometimes there are 2 numbers in the middle. When that happens you AVERAGE the two middle numbers.

**Example 2:** Find the MEDIAN of 23, 46, 14, 22, 28 and 17?

Put the number in order: 14, 17, 22, 23, 28, 46

Average the two middle numbers:  $(22+23)/2=22.5$

# MODE

The mode is the number that appears most frequently in a data set. Sometimes there is more than one mode.

Example: 22, 15, 20, 15, 7, 17, 5, 15, 7, 21, 30 7

The modes are 7 and 15



# Practice

Compute the Mean, Median, and Mode for the following data set:

12, 17, 32, 18, 100, 5, 17, 40, 20, 19, 29, 15

Which measure of center best describes the data set?

# Answer to Practice

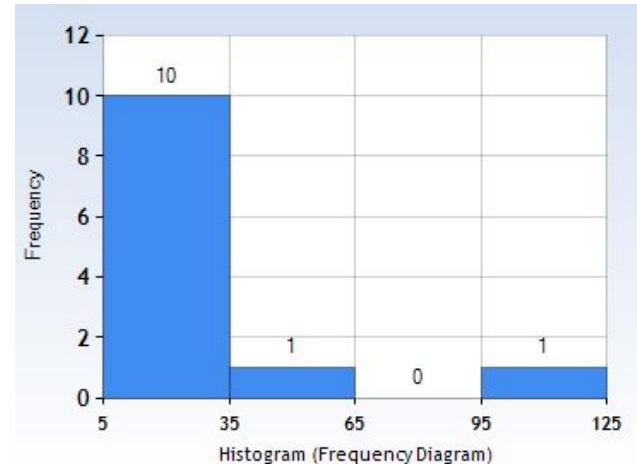
Compute the Mean, Median, and Mode for the following data set:  
12, 17, 32, 18, 100, 5, 17, 40, 20, 19, 29, 15

**Mean:**  $(12+17+32+18+100+5+17+40+20+19+29+15)/12=27$

**Median:** 5, 12, 15, 17, 17, 18, 19, 20, 29, 32, 40, 100  
 $(18+19)/2=18.5$

**Mode:** 17

Because the mean and median are quite a bit different the median is the better measure of center. If you look at the graph of the data, it is skewed which confirms that median is better.



# Independent Practice

Calculate Mean, Median and Mode

# Answers to Independent Practice

[answers](#)