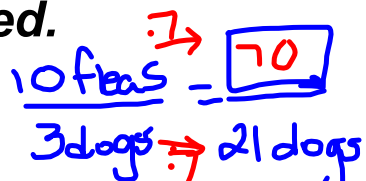


4/21/17 CCM6

Find **mean, median, mode and range** from a **lineplot**.  
Understand how the **shape of data** and **outliers** affect  
where the mean and median are located.

1. Agenda...finish pages 10-12 
2. Get out page 9 to check and a calculator.
3. Do the Friday warm-ups...**use calculator**.

Friday warm-ups

$$\textcircled{1} \quad \frac{45 \text{ min}}{2 \text{ doz}} = \frac{\boxed{180} \text{ min}}{8 \text{ doz}} \rightarrow 3 \text{ hours}$$

$$\textcircled{2} \quad \frac{1}{5} \cdot 9 - 2 \cdot \frac{f}{9}$$

✓ HW

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8. Find the mean, median, mode, and range of the data set:

11, 13, 11, 12, 10, 12, 11, 8

8, 10, 11, 11, 11, 12, 12, 13

mean = 11    median = 11    mode = 11    range = 5  
 13 - 8

$$\frac{88}{8}$$

9. Adams has the following data:

~~4~~, t, ~~5~~, ~~5~~, ~~4~~

If the mean is 4, which number could t be?

(a) 4

(b) 14

10. Find the mean, median, mode, and range of the data set:

8, 7, 9, 14, 12, 7, 6

6, 7, 7, 8, 9, 12, 14

mean = 9    median = 8    mode = 7    range = 8  
 14 - 6

$$\frac{63}{7}$$



*cw/HW*

**Finding Statistical Measures and Comparing them to Understand Data**

**BIG IDEAS....**

• **Shape of a set of data**

- Symmetrical data...mean and median are close to the same
- Skewed data...leans left or right...mean and median are different...mean is pulled left or right

• **Outliers**

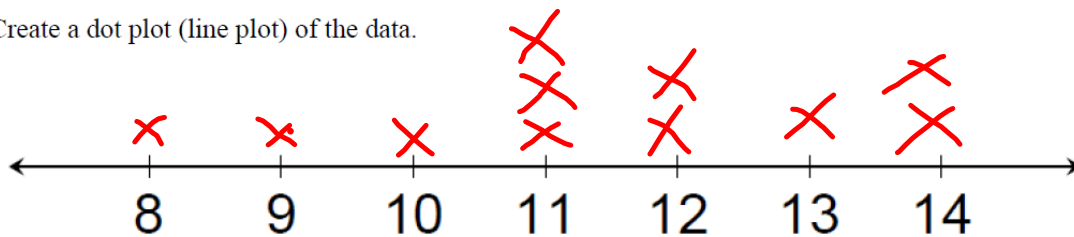
- When there is an outlier, it pulls the mean up or down
- Outliers barely affect the **median**
- If there is an outlier, the median will be more typical for that set of data than the mean

**Names:**

<b>Maxi Swanson</b> (11)	<b>Thomas Petes</b> (11)	<b>Michelle Hughes</b> (14)	<b>Shoshana White</b> (13)
<b>Deborah Black</b> (12)	<b>Tonya Stewart</b> (12)	<b>Tony Tung</b> (8)	<b>Richard Mudd</b> (11)
<b>Janice Wong</b> (10)	<b>Bobby King</b> (9)	<b>Charlene Greene</b> (14)	

What part of the data above is most important?

Create a dot plot (line plot) of the data.



Can you make any conclusions about this data?

*mode = 11 most are 11-14*

Describe the **SHAPE** of the data... Symmetrical? Skewed? Random?

*✓ right*

Write a statistical question about the data above.

**What are the name lengths of people in my class?** \_\_\_\_\_ { 10 } \_\_\_\_\_

CW/HW

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Investigating Statistics... What numbers affect the **MEDIAN**?

1. Using the names provided, place them in order from least to greatest. What is the middle number? How many numbers are to the left of the middle number? How many numbers are to the right of the middle number?

Middle Number: 11# of numbers to the left: 5# of numbers to the right: 5

2. The median is the number that is the midpoint of a set of data. The same number of data values occur before and after the median. What is the median for these data?

3. Remove two names from your data set so that:

The median stays the same: 11 when you remove 8 + 14The median increases: 12 when you remove 8 + 9The median decreases: impossible when you remove \_\_\_\_\_

4. ~~Maxi Swanson is moving. When she leaves, what will be the new median for the data set?~~

5. ~~What would happen to the median of the data set if you add a name with 16 letters?~~

6. ~~What would happen to the median of the data set if you add a name with 89 letters?~~

\*\*What do you call a data point far away from all others? \_\_\_\_\_

7. What would be the length of two names that you could add to the data set so that

The median stays the same:

The median increases:

The median decreases:

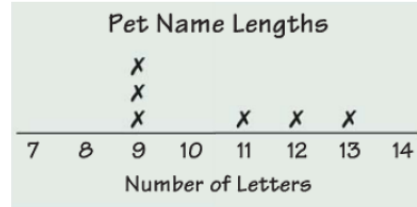
CW/HW

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### Investigating Statistics...What numbers affect the MEAN?

Susan has six pets. She made the line plot to show the lengths of her pets' names.

Describe the SHAPE of the data.



What is the mean of the data above?

If you add a 1 letter pet name, what will be the new mean?

What will be the new median?

How did a low data value change the mean?

How did a low data value change the median?

If you remove the 1 and replace it with a 25, what will be the new mean?

What will be the new median?

How did a high data value change the mean?

How did a high data value change the median?

Do very high or very low data values far away from the other data (outliers) change the mean or median more?

When there is an outlier, which measure of center would be better to use for that set of data?

When there is no outlier, which measure of center would be better to use for that set of data?