

### Football Statistics



In 2004 Cory Bradford was a receiver for the Texans. He received the ball in 12 out of the 16 games played by the team. The total yards received during each of the first 10 games is shown below, but the yards are not listed in a particular order.

24 9 52 32 5 52 27 13 65 38

If Cory Bradford's mean, median and mode for receptions during the first 7 games were 31, 24, and 52 (when rounded to the nearest whole number), which of the above yardages represents his stats?

1. Make a prediction for the yards received in the first 7 games. Justify your reasoning.
  
2. Use the TI-73 calculator and the given information to help you find the yards received by Cory Bradford during the first 7 games. Follow the instructions below.
  - a. Input the data using the **LIST** feature.
    - Press **LIST**.
    - Input the 7 yards one by one into L<sub>1</sub>.
    - Press **2nd****MODE** to return to the home screen.
  
  - b. Find the mean of the data using the **STAT** feature. Record your trials in the table on the next page.
    - Press **2nd****LIST** to access the STAT menu.
    - Press **▶** to arrow over to MATH.
    - Press **▼** to arrow down to mean(
    - Press **ENTER**.
    - Press **2nd****LIST** L<sub>1</sub> **ENTER**.
    - Press **ENTER**.

Think strategically when choosing the 7 yards. If the 7 yards chosen doesn't yield 31, go back to the list and modify it. Find the mean again for the new list.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9
1									
2									
3									
4									
5									
6									
7									
mean									

c. Once you get 31 for the mean of a data set, check the median and mode.

You could find these in any order. Another option would be to find the median of the data. Once you find a median that matches 24, check the mean and mode. Use reasonableness when choosing your numbers.

**To check the median:**

Press **2nd** **LIST** to access the STAT menu.

Press **▶** to arrow over to MATH.

Press **▼** to arrow down to median(

Press **ENTER**.

Press **2nd** **LIST** **L1** **ENTER**.

Press **ENTER**.

**To check the mode:**

Press **2nd** **LIST** to access the STAT menu.

Press **▶** to arrow over to MATH.

Press **▼** to arrow down to mode(

Press **ENTER**.

Press **2nd** **LIST** **L1** **ENTER**.

Press **ENTER**.

d. Record the yards for the first 7 games below.

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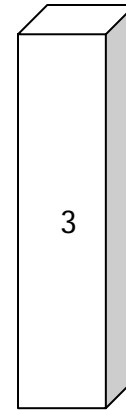
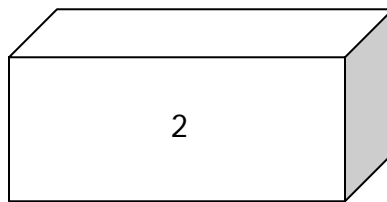
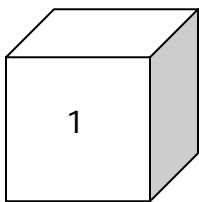
e. How many trials did it take before finding the yards for the 7 games?

- f. What strategies did you use to help you choose the numbers for each trial?
3. If the yards from the other 3 games were included in the data set, how would you predict
- a. the mean would change?
  - b. the median would change?
  - c. the mode would change?
4. Use the TI-73 to calculate the mean, median, and mode for all 10 games. Record below.
- Mean \_\_\_\_\_ Median \_\_\_\_\_ Mode \_\_\_\_\_
5. How close were your predictions to the actual mean, median and mode? Explain similarities and differences.

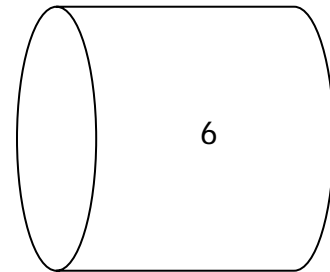
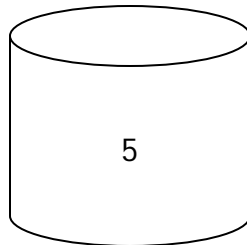
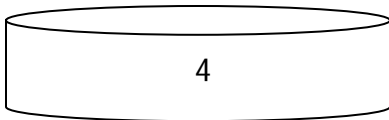
How do these shapes measure up?

- Look at each set of figures below. Make a prediction about the mean, median, and mode for the heights of each set. For which set of data do you predict the mean, median and mode to be the same? Which set do you predict to have the greatest mean? Which set do you predict to have the smallest mean?

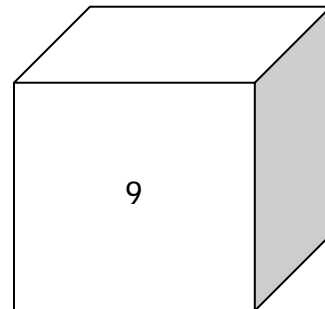
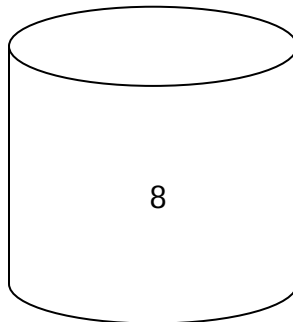
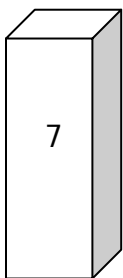
Set A



Set B



Set C



2. Measure the height of each figure. Round measurements to the nearest  $\frac{1}{4}$  inch.  
Record in the chart under #4.

3. Input the height data for each set of figures using the **LIST** feature.  
Set A – L<sub>1</sub>                      Set B – L<sub>2</sub>                      Set C – L<sub>3</sub>

4. Find the mean, median, and mode for each set of heights. Record data in the chart.

Set A	Height
1	
2	
3	
Mean	
Median	
Mode	

Set B	Height
4	
5	
6	
Mean	
Median	
Mode	

Set C	Height
7	
8	
9	
Mean	
Median	
Mode	


5. Input the mean, median and mode for each set of data using the **LIST** feature.  
Set A – L<sub>4</sub>                      Set B – L<sub>5</sub>                      Set C – L<sub>6</sub>

6. Create a bar graph for the mean, median and mode of each set of heights. Sketch what you see.

For each set:

Press **2nd****Y=****ENTER**.

With the cursor blinking on ON, press **ENTER**.

Press **↓** to arrow down to the next row. Press **→** to arrow over to  (the bar graph). Press **ENTER**.

Since the measures of central tendency for Set A were in L<sub>4</sub>, choose L<sub>4</sub> for the CategList. To do this, press **↓** to arrow down to the CategList row. Press

**2nd****LIST** and select L<sub>4</sub>. Press **ENTER**.

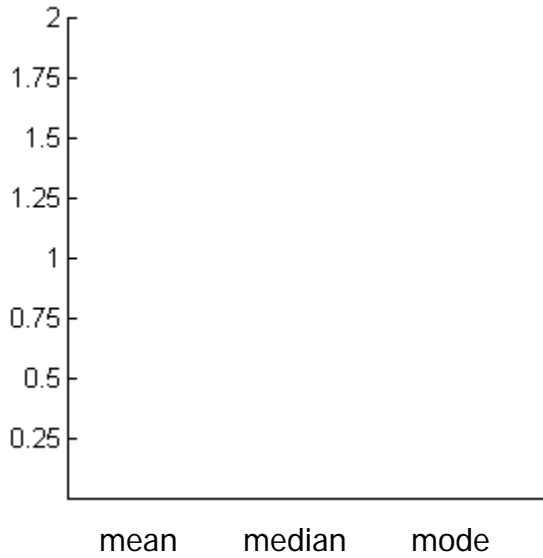
Your screen should look like this:



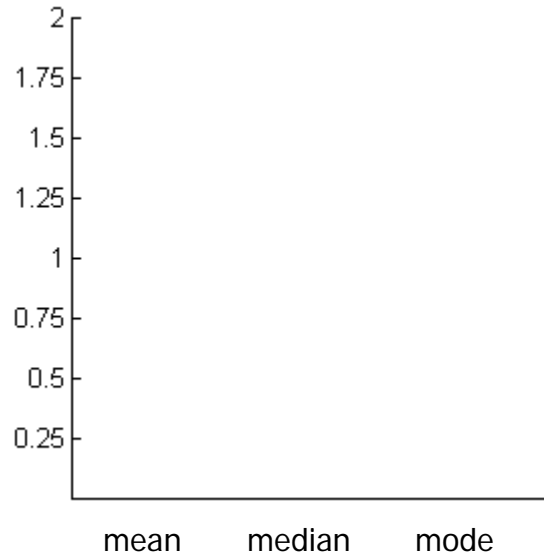
Press **ZOOM** and arrow down to ZoomStat to see the graph.

Sketch your graph on the next page. Repeat the process for Sets B and C.

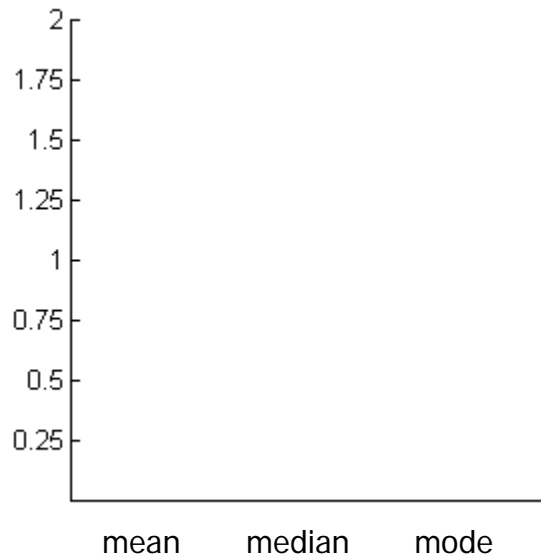
Set A



Set B



Set C



7. Use the information to answer the following questions.
- Which set of figures has the same mean, median and mode?
  - Which set has no mode?
  - Which set has the same median and mode?

- d. Which data set has the greatest mean?
- e. Which data set has the smallest mean?
- f. How can looking at the figures help you determine the central tendencies?
- g. How would combining the data sets affect the mean? The median? The mode?

mean –

median –

mode –

- 8. How different do you think the data sets would be if you measured the lengths or diameters of the figures? What would be similar? What would be different? Explain your reasoning.
- 9. Measure the lengths or diameters for each set of figures. Be sure to round measurements to the nearest  $\frac{1}{4}$  inch. Record in the chart under #10.
- 10. Input the length/diameter data for each set of figures using the **LIST** feature.  
Set A – L<sub>1</sub>                  Set B – L<sub>2</sub>                  Set C – L<sub>3</sub>  
Find the mean, median, and mode. Record data in the chart.

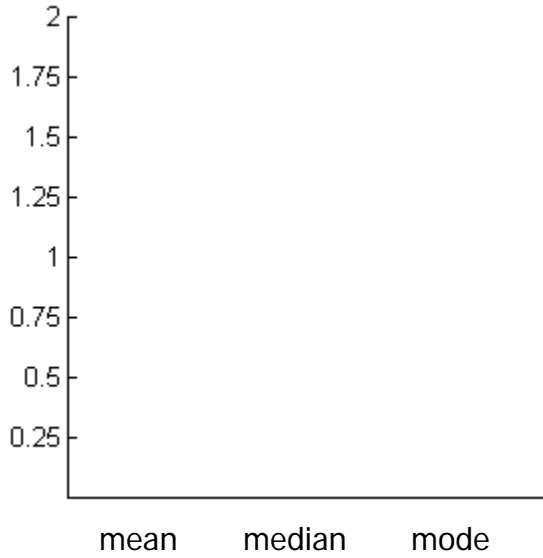
Set A	Length/ Diameter
1	
2	
3	
Mean	
Median	
Mode	

Set B	Length/ Diameter
4	
5	
6	
Mean	
Median	
Mode	

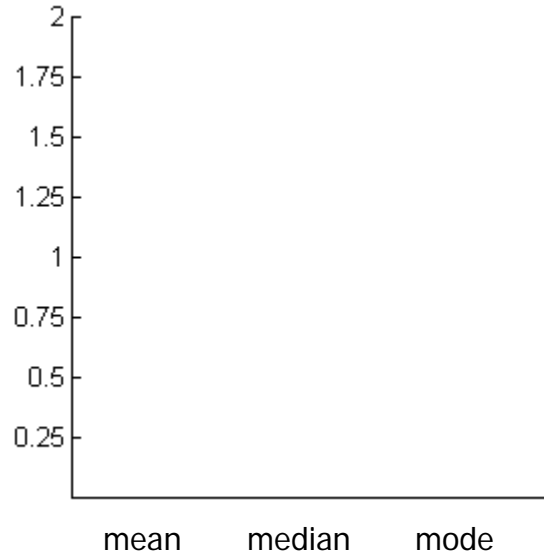
Set C	Length/ Diameter
7	
8	
9	
Mean	
Median	
Mode	

11. Create a bar graph for each set of lengths/diameters. Sketch what you see.

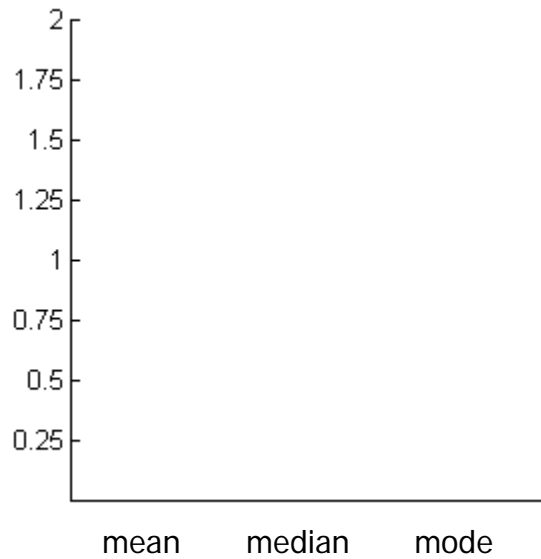
**Set A**



**Set B**



**Set C**





Data Mix-Up

Mr. Tucker gave his students the following data from the 2004 football season.

The Houston Texans played 16 games in 2004. The numbers in the table represent the total passing yards by David Carr, the quarterback, for each game.

229	215
313	164
233	201
228	157
372	167
266	220
276	139
245	114

Each student had to create a data set of passing yards for the losing games and a data set of passing yards for the winning games using the clues provided.

- Clue 1: The Texans had 2 fewer wins in 2004 than losses.
- Clue 2: The mean passing yards for the losing data set is less than the mean passing yards for the winning data set.
- Clue 3: All of the passing yard totals for the winning games are in the same hundreds group except for 1.
- Clue 4: The range for the passing yards of the losing games is 258 and of the winning games is in the one hundred range.
- Clue 5: The smallest value in both data sets is in the one hundred range.

The data sets for 2 students are shown below.

Marissa	
Losses	Wins
313	372
276	266
245	233
229	228
215	220
167	201
164	114
157	
139	

Sheldon	
Losses	Wins
372	276
313	266
245	233
229	228
215	220
167	201
164	139
157	
114	

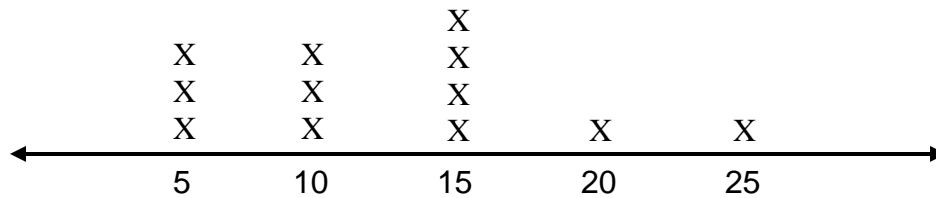
Use the clues and a TI-73 calculator to make your own data set. Find the mean, median and mode for each of your data sets. Compare your results to the given student results to decide which student is correct. Justify your reasoning.

1. The table shows the number of points Menu scored during the first 5 basketball games.

Game	Points Scored
1	15
2	11
3	18
4	12
5	29

If Menu wants to predict how many points he will score during the next game, which measure of the data should he use?

- A Mean
  - B Median
  - C Mode
  - D Range
2. Mai charges \$5 per hour for babysitting. She decided to chart the amount she earned on different evenings spent babysitting during the past month.



What was the median amount she earned during the month?

- A \$10
- B \$12.50
- C \$14
- D \$15

3. In his first three hours of waiting tables, Kimiko received the following tip amounts.

\$2   \$1.50   \$2   \$3.25   \$5   \$2.25   \$12

If Kimiko wants to ask for a raise by showing his tips are not very good, which measure of central tendency should he show his boss?

- A Mean
- B Median
- C Mode
- D Range

4. To participate in an activity at the Fall Festival or purchase food items, tickets must be purchased. Below is a table that describes some booths and food items at the Fall Festival and the number of tickets needed for that booth.

Activity or Food Item	Number of Tickets
Cake Walk	3
Fishing	2
Moon Walk	4
Pony Ride	6
Ring Toss	2
Rock Climbing	7
Chips	3
Drinks	3
Hot Dogs	5
Nachos	5

If the Fall Festival adds a petting zoo to the list above, how many tickets should the petting zoo cost for the mean to stay the same?

- A 3
- B 3.5
- C 4
- D 5