

Activity Page: Seven Friends

Seven friends each have a package of colored chocolate candies. Some of the packages are the fun size and some of the packages are the regular size. The chart below shows how many individual colored chocolate candies each person has in his or her package.

Friend's Name	Number of Colored Chocolate Candies
Miriam	24
Martha	18
Mark	38
Maria	24
Melissa	32
Michael	36
Melinda	24

1. What was the most common number of candies in a bag?
2. If the bags of candy were arranged in order from the least number of candies in a bag to the greatest number of candies in a bag, which bag would be located in the exact center? How many candies would be in this bag?
3. Who has the greatest number of candies? How many does he/she have?
4. Who has the least number of candies? How many does he/she have?
5. How many more candies does the person with the most have than the person with the least?
6. If the candies were redistributed so each person has the same amount, how many would each person have?
7. Open the **Seven Friends spreadsheet** and complete the activities on **sheet 1**.

Activity Page: How Far Can We Stretch?

1. Record the names of all of the students in your group in the chart below. Then measure across each person's back the length of how far each person can stretch. Measure from fingertip to fingertip the length in inches of each member of your group (round to the nearest inch) and record each length in the table.

Student Name	Height in Inches

2. When your group has measured and recorded the length of each person's stretch in the group, transfer the information to the chart on the overhead.
3. Record the class data on the last page of this activity.
4. Create a stem and leaf plot to display the lengths of how far the students in your class can stretch.
5. Create a line plot to display the lengths of how far the students in your class can stretch.
6. What are the similarities and differences in the two plots? Can you tell more about the data in one of the plots than the other? If so, which plot displays the data better? If you had to pick only one plot to display the data which one would you choose and why?

Mean, Line Plots, Stem and Leaf Plot Spreadsheet

7. What is the mean of the data? Justify your answer.
8. What is the mode of the data? Justify your answer.
9. What is the median of the data? Justify your answer.
10. What is the range of the data? Justify your answer.
11. Use the Stem and Leaf Plotter to verify your stem and leaf plot.
<http://www.shodor.org/interactivate/activities/stemleaf/index.html>
12. Use the Line Plotter to verify your line plot.
<http://www.shodor.org/interactivate/activities/plop/index.html>
13. Use formulas in a spreadsheet to verify your answers for mean, median, mode, and range.
14. Which method (paper and pencil or website) was easier to use to construct the Stem and Leaf Plot and Line Plot?
15. How is calculating the mean, median, mode, and range from the spreadsheet different from calculating the statistics by hand? How is it the same?
16. Which method (paper and pencil or spreadsheet) was easier to use to calculate the mean, median, mode, and range? Why?

Activity Page: What is Missing?

There are nine sixth grade classes at Texas Middle School. Mary knows the number of students in six of the classes. The data she knows appears in the table below.

Class A	22 students	Class F	24 students
Class B	25 students	Class G	?
Class C	23 students	Class H	?
Class D	22 students	Class I	?
Class E	24 students		

She knows that the largest class has twenty-five students. She also knows the information listed below.

The mean is 23 students.
The mode is 24 students.
The median is 23 students.
The range is 5 students.

How many students are in each of the three missing classes?

Use the websites and a spreadsheet to help find the number of students in the three missing classes.

<http://www.shodor.org/interactivate/activities/stemleaf/index.html>

<http://www.shodor.org/interactivate/activities/plop/index.html>

Mean, Line Plots, Stem and Leaf Plot Spreadsheet

- 1 Which of the following is the data set represented in the stem and leaf plot shown below?

5	6 8 9
6	1 3 4 5
7	0

- A 0, 1, 3, 4, 5, 6, 7, 8, 9
B 50, 60, 70
C 5689, 61345, 70
D 56, 58, 59, 61, 63, 64, 65, 70

- 2 The range in weight of several boxes in a warehouse is 25 pounds. If the greatest weight of a box is 78 pounds, how much does the lightest box weigh?

- A 25 pounds
B 53 pounds
C 103 pounds
D 128 pounds

Mean, Line Plots, Stem and Leaf Plot Spreadsheet

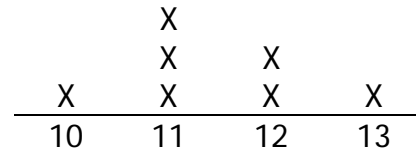
- 3 Andrew kept a record of his bowling scores. The scores are shown in the table below.

Game	Score
1	150
2	140
3	170
4	200
5	140

What is the mean of his scores?

- A 160
- B 140
- C 200
- D 170

- 4 The line plot shows the ages of the grandchildren in a large family.



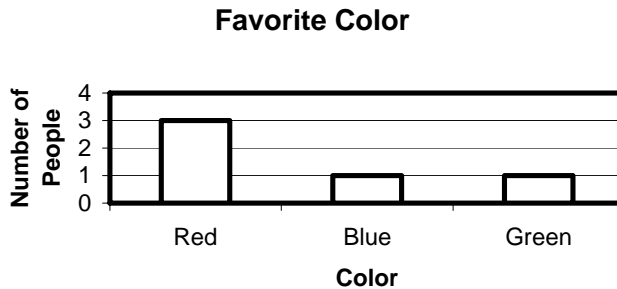
Which statement does the information in the line plot support?

- A There are just as many grandchildren that are 11 years old as grandchildren that are 12 years old.
- B There are six grandchildren that are 11 years old or older.
- C There are more grandchildren that are 11 years old than grandchildren that are 12 years old or 13 years old.
- D There are two grandchildren that are 12 years old or older.

Simple Probability, Bar and Circle Graphs Spreadsheet

What Color?

Mary conducted a survey to determine the favorite color of 5 students in her advisory class. The results are shown in the bar graph below.



She then took a color tile and let it represent the color of each student's vote and put it in a bag.

1. How many color tiles of each color should she put in the bag? Justify your answer.
2. If Mary draws a color tile at random out of the bag, how likely is she to draw a red tile? Why?
3. If Mary draws a color tile at random out of the bag, how likely is she to draw a blue tile? Why?
4. If Mary draws a color tile at random out of the bag, how likely is she to draw a green tile? Why?
5. Sketch a circle graph to represent what part of the whole each color tile represents in the Favorite Color data.
6. Transfer your sketch onto a piece of chart paper.
7. Record on the chart paper: What are the similarities and differences in the circle graph you drew and the bar graph you were given?

Simple Probability, Bar and Circle Graphs Spreadsheet

(Continue: What Color?)

Mary wanted to conduct an experiment using the bag of tiles she created based on the information in the Favorite Color graph. She decided she would draw a tile out of the bag, record the color of the tile, return the tile to the bag, and draw again. She decided to repeat this process for 25 draws.

8. How many of the 25 draws should Mary expect to be red? Why?
9. How many of the 25 draws should Mary expect to be blue? Why?
10. How many of the 25 draws should Mary expect to be green? Why?

You will need to model the same experiment that Mary did.

- Create a frequency table like the one below on the chart paper.
- Put a color tile for each student vote in the bag.
- Draw a color tile at random from the bag.
- Record the color of the tile on the chart paper and worksheet.
- Return the tile to the bag.
- Repeat this process 100 times.

Color	Tally	Frequency
Red		
Blue		
Green		

The number of tiles you actually draw from the bag in an experiment is called the *Experimental Probability*.

11. What was your experimental probability of drawing a red?
12. What was your experimental probability of drawing a blue?
13. What was your experimental probability of drawing a green?

Simple Probability, Bar and Circle Graphs Spreadsheet

(Continue: *What Color?*)

14. How did the number of red tiles you drew compare to the number you said Mary should have drawn?
15. How did the number of blue tiles you drew compare to the number you said Mary should have drawn?
16. How did the number of green tiles you drew compare to the number you said Mary should have drawn?
17. How close was your prediction to the actual results?

Open the *What Color?* spreadsheet file.

- Select *Sheet 1* and follow the directions to simulate the experiment.
- Select *Sheet 2* and follow the directions to create a circle graph.

Color	Tally	Frequency
Red		
Blue		
Green		

The number of tiles of one color in the bag compared to total number of tiles in the bag is called the *Theoretical Probability* of selecting a tile of that color.

18. How close was your prediction to the actual results? (Record your response on the chart paper.)
19. What could you do to get your experimental probability to be closer to the theoretical probability? (Record your response on the chart paper.)

Simple Probability, Bar and Circle Graphs Spreadsheet

You Design It

Open a spreadsheet document. Use the spreadsheet to design a spinner that has each of the theoretical probabilities listed in the table.

$P(\text{Red}) = \frac{1}{3}$
$P(\text{Blue}) = \frac{1}{4}$
$P(\text{Green}) = \frac{1}{4}$
$P(\text{Yellow}) = \frac{1}{6}$

Explain how you designed your spinner.

Simple Probability, Bar and Circle Graphs Spreadsheet

- 1** Alan has 3 peppermint candies, 8 cinnamon candies, 4 root beer candies, and 6 butterscotch candies in a bag. If he draws a piece of candy at random from the bag, what is the probability he will draw a piece of butterscotch candy?

A $\frac{5}{7}$

B $\frac{3}{5}$

C $\frac{2}{5}$

D $\frac{2}{7}$

- 2** Mary has a quarter to buy a gumball from a machine. In the machine there are 3 red gumballs, 4 blue gumballs, 3 yellow gumballs, and 2 green gumballs. What is the probability that Mary will NOT get a yellow gumball when she puts her quarter in the machine to buy a gumball?

A $\frac{3}{4}$

B $\frac{2}{3}$

C $\frac{1}{3}$

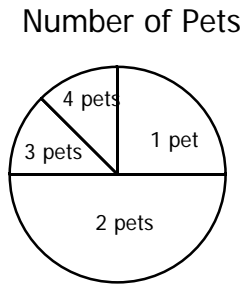
D $\frac{1}{4}$

Simple Probability, Bar and Circle Graphs Spreadsheet

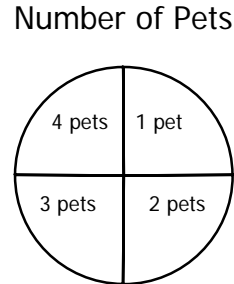
- 3 Alicia conducted a survey about the number of pets people owned. The results of the survey are shown in the table below.

Number of Pets	
Number of Pets	People
1	50
2	100
3	25
4	25

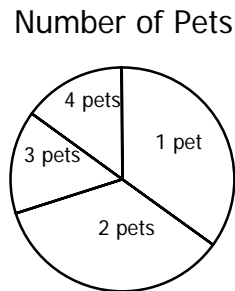
A



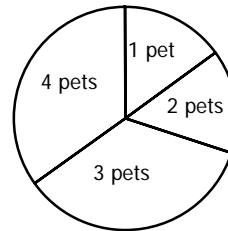
C



B

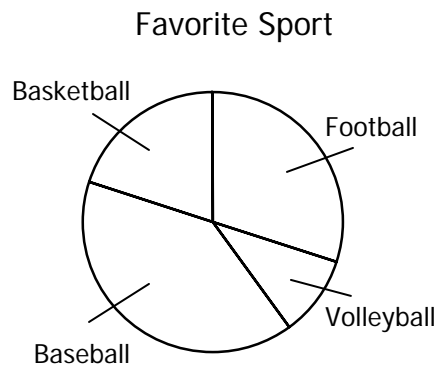


Number of Pets



Simple Probability, Bar and Circle Graphs Spreadsheet

- 4 The circle graph shows the results of a survey about students' favorite sports.



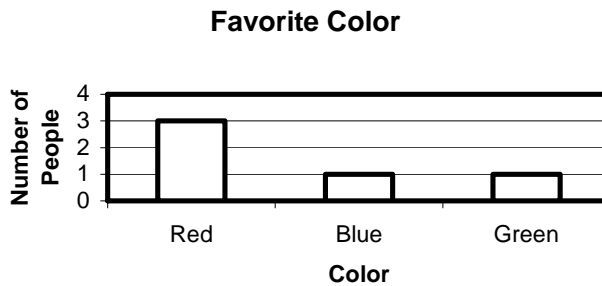
Which statement is supported by the information in the circle graph?

- A Football is the most popular sport.
- B More people said baseball was their favorite sport than basketball.
- C Basketball is the least favorite sport.
- D More people said basketball was their favorite sport than football.

What Color?

Part I.

Mary conducted a survey to determine the favorite color of 5 students in her advisory class. The results are shown in the bar graph below.



She then took a color tile and let it represent the color of each student's vote and put it in a bag.

1. How many color tiles of each color should she put in the bag? Justify your answer.
2. If Mary draws a color tile at random out of the bag, how likely is she to draw a red tile? Why?
3. If Mary draws a color tile at random out of the bag, how likely is she to draw a blue tile? Why?
4. If Mary draws a color tile at random out of the bag, how likely is she to draw a green tile? Why?
5. Sketch a circle graph to represent what part of the whole each color tile represents in the Favorite Color data.
6. Transfer your sketch onto a piece of chart paper.
7. Record on the chart paper: What are the similarities and differences in the circle graph you drew and the bar graph you were given?

Part II.

Mary wanted to conduct an experiment using the bag of tiles she created based on the information in the Favorite Color graph. She decided she would draw a tile out of the bag, record the color of the tile, return the tile to the bag, and draw again. She decided to repeat this process for 25 draws.

1. How many of the 25 draws should Mary expect to be red? Why?
2. How many of the 25 draws should Mary expect to be blue? Why?
3. How many of the 25 draws should Mary expect to be green? Why?

The number of possible outcomes (how many tiles of a color) out of all possible outcomes (total number of tiles) is called the *Theoretical Probability*

Model the same experiment that Mary did using color tiles and a bag.

- Create a frequency table like the one below on the chart paper
- Put a color tile for each student vote in the bag
- Draw a color tile at random from the bag
- Record the color of the tile on the chart paper and worksheet
- Return the tile to the bag
- Repeat this process 25 times

Color	Tally	Frequency
Red		
Blue		
Green		

The number of tiles you actually draw from the bag in an experiment is called the *Experimental Probability*.

4. What was your experimental probability of drawing a red?, a blue?, a green?
5. How did the number of red tiles you drew compare to the number you said Mary should have drawn?

(Continue: What Color? – Part II.)

6. How did the number of blue tiles you drew compare to the number you said Mary should have drawn?
7. How did the number of green tiles you drew compare to the number you said Mary should have drawn?
8. How close was your prediction to the actual results?
9. What could you do to get your experimental probability to be closer to the theoretical probability?
10. Predict what would happen if you continued the experiment for 100 more draws.
11. Sketch a circle graph of the experimental data on the chart paper.

Simple Probability, Bar Graphs, and Circle Graphs TI-73

Part II.

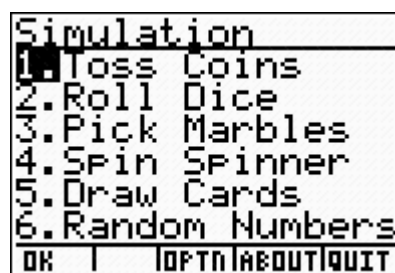
Model Mary's experiment using the TI-73 calculator, and create a circle graph of the collected. Create a second frequency table like the one in Part I on the chart paper. Record the results on the chart paper and worksheet

By using the TI-73 calculator to simulate the experiment a large data set can be collected in a very short amount of time.

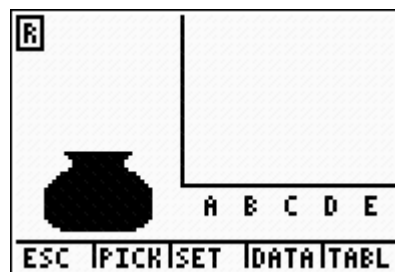
A. **ON** → **APPS** → (Prob Sim) → **ENTER**



B. **3** (Pick Marbles)



C. **ZOOM** (Set for settings)



D. Under Settings, set up as illustrated.

Trial Set: 1
Types: 3
Replace: Yes



Simple Probability, Bar Graphs, and Circle Graphs TI-73

(Continue: What Color? – Part III.)

E. **WINDOW**

Under # of marbles, set up colors as illustrated.

Red → Marble A: 3

Blue → Marble B: 1

Green → Marble C: 1

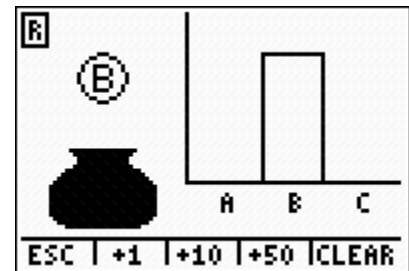
F. **ENTER**

# of marbles		
Marble A		3
Marble B		1
Marble C		1

ESC | | | IDK

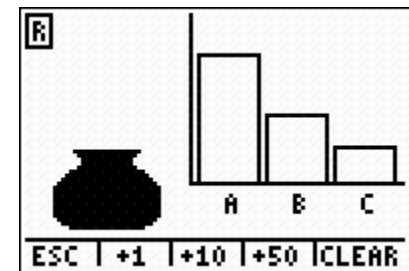
G. **TRACE**

(this will simulate 50 trials)



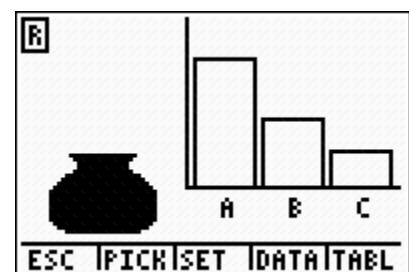
H. **GRAPH**

(this will show a table of the data generated)



I. **TRACE**

Copy the data into the frequency table.



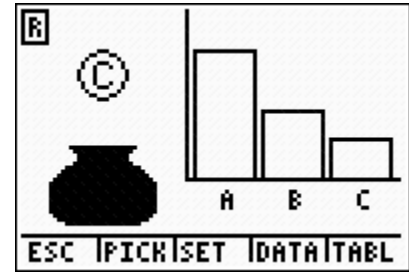
PICK	MARBLE
44	C
45	B
46	B
47	B
48	B
49	A
50	C
51	A

ESC | PICK | SET | DATA | GRPH

Simple Probability, Bar Graphs, and Circle Graphs TI-73

(Continue: What Color? – Part III.)

J. Sketch the graph on chart paper.



1. What was the experimental probability of drawing a red?, a blue?, a green?
2. Has the experimental probability moved closer to the theoretical probability? Justify your answer.

You Design It

Use a graphing calculator to design a spinner that has each of the theoretical probabilities listed in the table.

$P(\text{Red}) = \frac{1}{3}$
$P(\text{Blue}) = \frac{1}{4}$
$P(\text{Green}) = \frac{1}{4}$
$P(\text{Yellow}) = \frac{1}{6}$

Explain how you designed your spinner.

Simple Probability, Bar Graphs, and Circle Graphs TI-73

- 1** Alan has 3 peppermint candies, 8 cinnamon candies, 4 root beer candies, and 6 butterscotch candies in a bag. If he draws a piece of candy at random from the bag, what is the probability he will draw a piece of butterscotch candy?

A $\frac{5}{7}$

B $\frac{3}{5}$

C $\frac{2}{5}$

D $\frac{2}{7}$

- 2** Mary has a quarter to buy a gumball from a machine. In the machine there are 3 red gumballs, 4 blue gumballs, 3 yellow gumballs, and 2 green gumballs. What is the probability that Mary will NOT get a yellow gumball when she puts her quarter in the machine to buy a gumball?

A $\frac{3}{4}$

B $\frac{2}{3}$

C $\frac{1}{3}$

D $\frac{1}{4}$

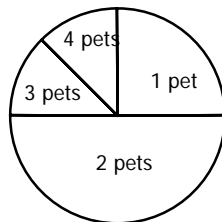
Simple Probability, Bar Graphs, and Circle Graphs TI-73

- 3 Alicia conducted a survey about the number of pets people owned. The results of the survey are shown in the table below.

Number of Pets	
Number of Pets	People
1	50
2	100
3	25
4	25

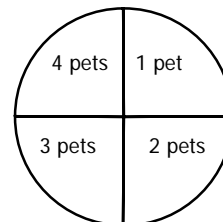
A

Number of Pets



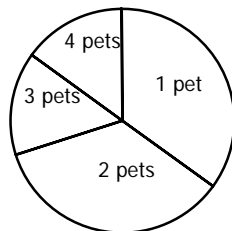
C

Number of Pets

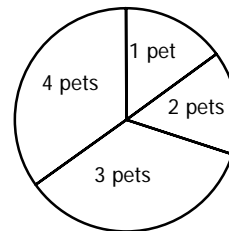


B

Number of Pets

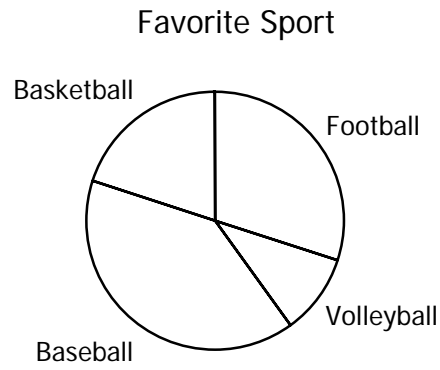


Number of Pets



Simple Probability, Bar Graphs, and Circle Graphs TI-73

- 4 The circle graph shows the results of a survey about students' favorite sports. Which statement is supported by the information in the circle graph?



- A Football is the most popular sport.
- B More people said baseball was their favorite sport than basketball.
- C Basketball is the least favorite sport.
- D More people said basketball was their favorite sport than football.

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 are shown below.

24 9 52 32 5 52 27 13 65 38

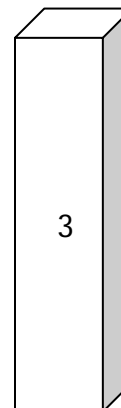
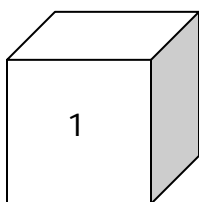
If Cory Bradford's mean, median and mode for receptions during the first 7 games were 31, 24, and 52 (when rounded to the nearest whole number), which of the above yardages represents his stats?

1. Use the spreadsheet document to help you find the yards received by Cory Bradford during the first 7 games. Follow the instructions on the spreadsheet given in each of the colored boxes.
2. 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?
3. Use the spreadsheet to calculate the mean, median, and mode for all 10 games. Set up a table beside or below the existing information.
4. How close were your predictions to the actual mean, median and mode? Explain similarities and differences.
5. Print the file when finished. Be sure to ask your teacher for any special directions before printing.

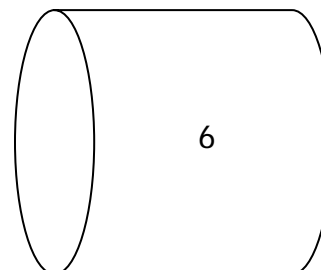
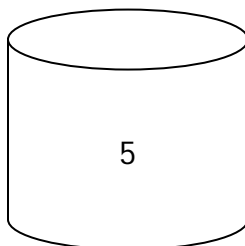
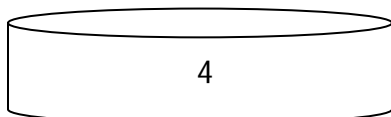
How Do These Shapes Measure Up?

- 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?

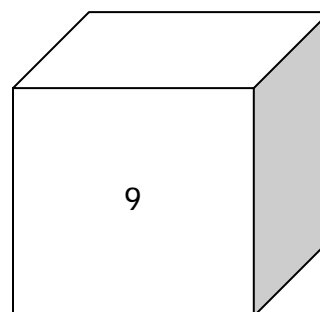
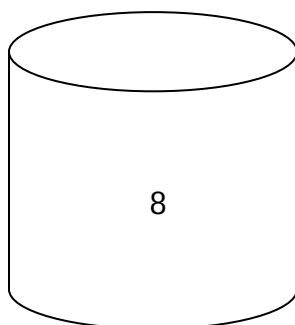
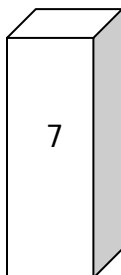
Set A



Set B



Set C



2. Measure the height of each figure. Round measurements to the nearest $\frac{1}{4}$ inch.
3. Use the spreadsheet document to
 - a. organize data.
 - b. find the mean, median and mode using formulas for the heights of each set.
 - c. chart the mean, median and mode for the heights of each set.
4. Use the information to answer the following questions.
 - d. Which set of figures has the same mean, median and mode?
 - e. Which set has no mode?
 - f. Which set has the same median and mode?
 - g. Which data set has the greatest mean?
 - h. Which data set has the smallest mean?
 - i. How can looking at the figures help you determine the central tendencies?
 - j. How would combining the data sets affect the mean? The median? The mode?

mean –

median –

mode –
5. 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.
6. Create a new table to the side of the current spreadsheet in order to find the mean, median, and mode of the lengths or diameters for each set of figures. Be sure to round measurements to the nearest $\frac{1}{4}$ inch. Chart the data.

7. Print the file when finished. Be sure to ask your teacher for any special directions before printing.

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 spreadsheet to make your own data set. Find the mean, median and mode using formulas for each of your data sets. Compare your results to the given student results to decide which student is correct. Justify your reasoning.

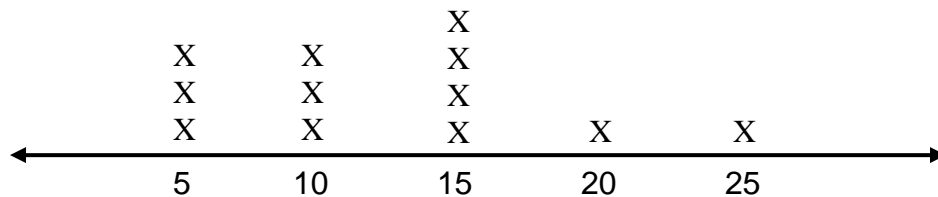
1. The table shows the number of points Menu scored during the first 5 basketball games.

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 a petting zoo is added to the list above, how many tickets should the Festival organizers assigned to the petting zoo for the mean to stay the same?

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

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 L₁.
 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]** L₁ **[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.

--

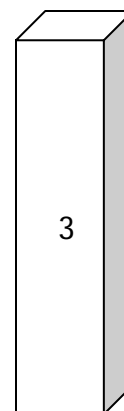
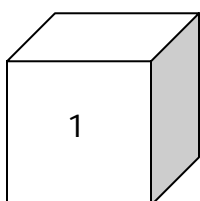
- e. How many trials did it take before finding the yards for the 7 games?

- 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
- the mean would change?
 - the median would change?
 - 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.

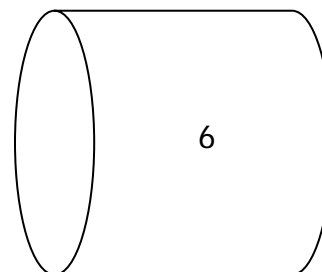
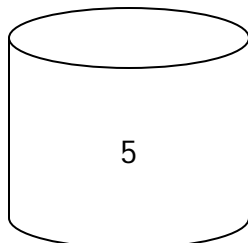
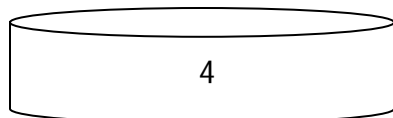
How do these shapes measure up?

- 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?

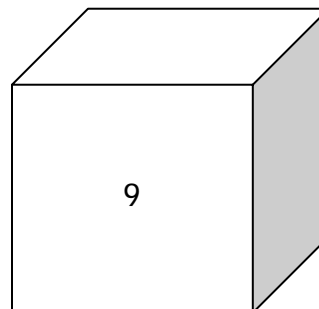
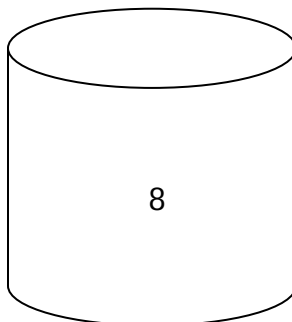
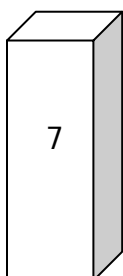
Set A



Set B



Set C



- Measure the height of each figure. Round measurements to the nearest $\frac{1}{4}$ inch.
Record in the chart under #4.
- Input the height data for each set of figures using the **LIST** feature.
Set A – L₁ Set B – L₂ Set C – L₃
- 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	

- Input the mean, median and mode for each set of data using the **LIST** feature.
Set A – L₄ Set B – L₅ Set C – L₆
- 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 L₄, choose L₄ for the CategList. To do this, press **↓** to arrow down to the CategList row. Press

2nd**LIST** and select L₄. Press **ENTER**.

Your screen should look like this:

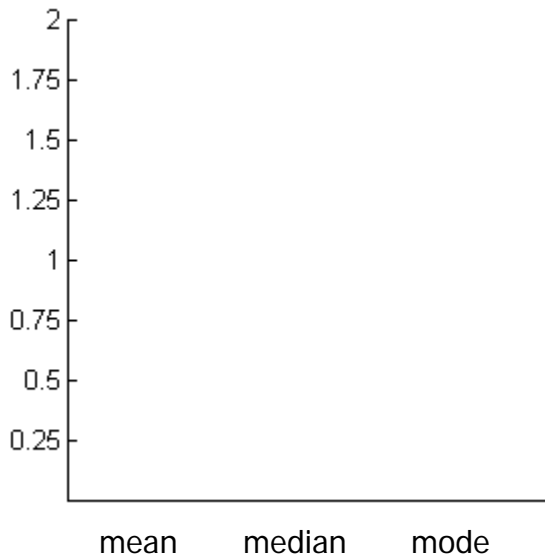
```

Plot1 Off
Type: ▽ ▽ ▽ ▽ ▽
CategList: L4
DataList1: 1
DataList2: L2
DataList3: L3
Vent Hor 1 2 3
  
```

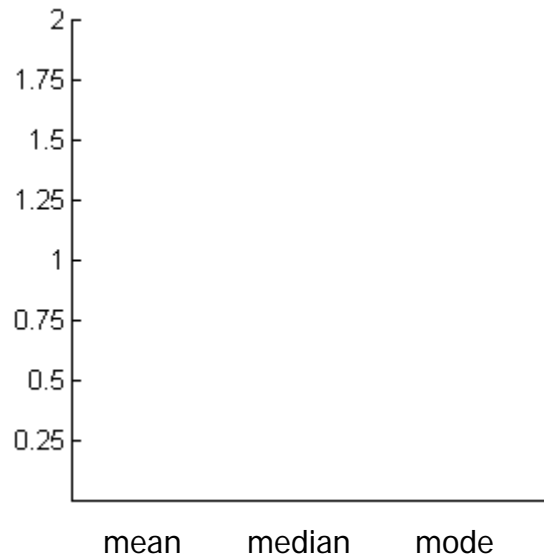
Press **ZOOM** and arrow down to ZoomStat to see the graph.

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

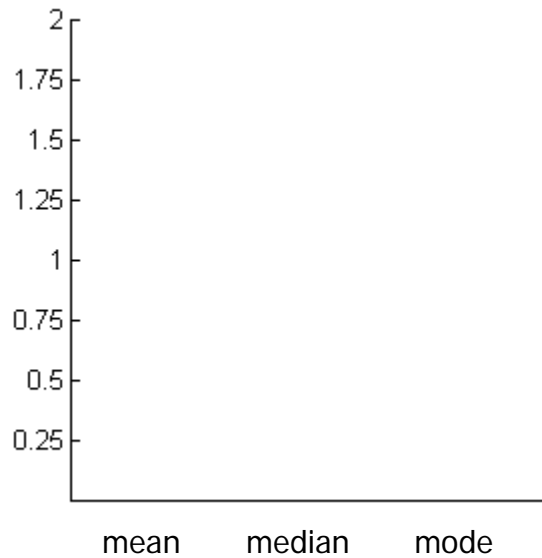
Set A



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 – L₁ Set B – L₂ Set C – L₃
Find the mean, median, and mode. Record data in the chart.

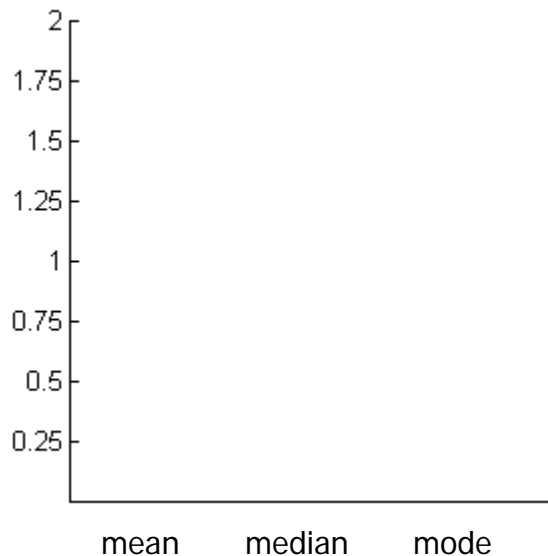
Set A	Length/ Diameter
1	
2	
3	
Mean	
Median	
Mode	

Set B	Length/ Diameter
4	
5	
6	
Mean	
Median	
Mode	

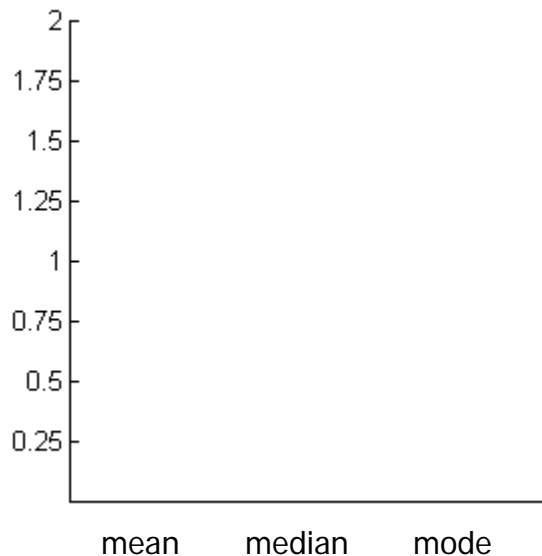
Set C	Length/ Diameter
7	
8	
9	
Mean	
Median	
Mode	

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

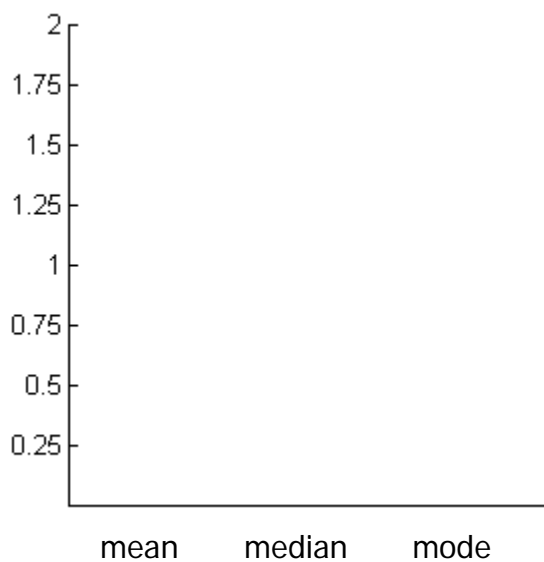
Set A



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	

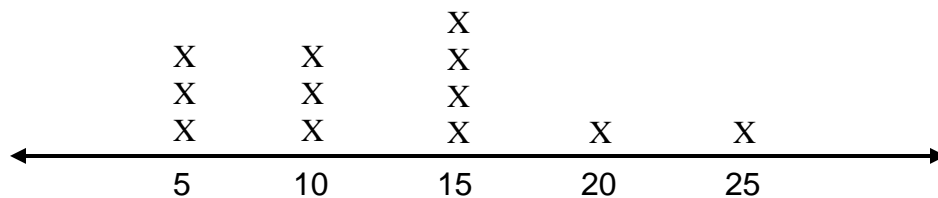
Use the clues and a TI-73 calculator to make your own data set. Find the mean, median and mode for each of your data sets. Compare your results to the given student results to decide which student is correct. Justify your reasoning.

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

The Helper Dilemma

1. Use a coin and a 10-sided number decahedron to simulate the experiment 40 times. Record your results in the frequency table.

Combination	Tally	Frequency
Head, 1		
Head, 2		
Head, 3		
Head, 4		
Head, 5		
Head, 6		
Head, 7		
Head, 8		
Head, 9		
Head, 10		

Combination	Tally	Frequency
Tail, 1		
Tail, 2		
Tail, 3		
Tail, 4		
Tail, 5		
Tail, 6		
Tail, 7		
Tail, 8		
Tail, 9		
Tail, 10		

2. Transfer your information into **The Teacher Helper** document. Follow the instructions in the orange boxes numbered 1-6.
3. Create a graph to represent the Theoretical Probability in Column B.
 - Highlight the Combinations (i.e. Head, 1) in Column A along with the data in the green cells in Column B.
 - Go to Insert Chart.
 - Choose "doughnut" for the chart type on the left-hand side.
 - Click on next twice and type in the title "Theoretical Probability."
 - Click on the tab that reads "Legend." Click in the box next to "Show Legend" so that the check mark disappears.
 - Click on the tab that reads "Data Labels." Click inside the boxes next to "Category Name and Value" so that a check mark appears in both boxes.
 - Click on finish.
 - Click and hold inside the chart. Drag the chart below the first set of data.
 - Enlarge the chart by clicking on a corner and dragging to the desired size.

(continue: The Helper Dilemma)

4. Create a graph to represent the Experimental Probability in Column I (include the Combinations such as Head, 1). Follow the same instructions as #3 except highlight the information in Columns H and I and use the title "Experimental Probability." Drag the chart next to the Theoretical Probability Chart, the first chart.
5. Print the document. Be sure to preview the pages to be printed. You may need to adjust margins so that you only print 1 or 2 pages.
6. How were the experimental and theoretical probabilities the same? Explain.
7. How were the experimental and theoretical probabilities different? Explain.
8. If the fractions were changed to percents, what would you expect the percents to total and why?
9. If Mrs. Alexander has more students enrolled in her class, how can she change or modify her procedure for finding a helper?

Use the following information to answer questions 8-13.

In one particular class, Mrs. Alexander assigned combinations with Heads and a prime number to only boys and combinations with Tails to only girls.

10. What is the sample space for this class?
11. What can you conclude about this particular class? Explain.

(continue: The Helper Dilemma)

12. Which gender is most likely to be the helper? Explain.
13. What is the probability of a girl being the helper? Explain.
14. What is the probability of a boy being the helper? Explain.
15. How could Mrs. Alexander change or modify her procedure for finding a helper in this class to eliminate the extra combinations? Explain.

The Choir Helper

The choir teacher, Mr. Roberts, heard Mrs. Alexander in the teacher's lounge describe her method for assigning a helper. He thought the idea would be a big help in his classes. Since his choir classes sometimes have between 45 and 50 students and no students can be assigned the same "code," Mr. Roberts cannot use the coin and 10-sided number decahedron. Mrs. Alexander gave Mr. Roberts 8 different items that he could use to assign helpers in his class.

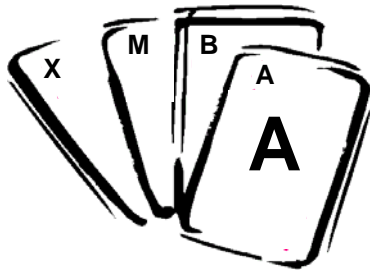


A Coin

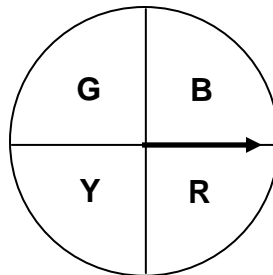


A Six-Sided Number Cube

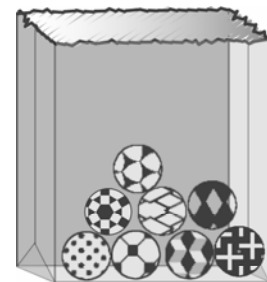
A 10-sided Number
Decahedron with the
numbers 1-10



A Set of Alphabet Cards A-Z

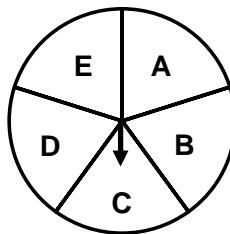


A Spinner



A Bag of 8 Different
Marbles

A 12-sided Number
Dodecahedron with the
numbers 1-12



A Spinner

(continue: The Choir Helper)

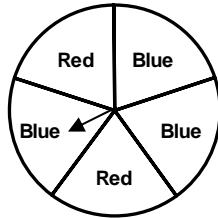
1. Help Mr. Roberts pair the items together that he can use to assign helpers. There will be 4 pairs. Justify your reasoning for each pair made and tell how many assignments for helpers could be made from each pair.
2. Choose one of the pairs of items above and simulate the event for 50 trials. Create a frequency table to record your results.
3. Create a table in **The Teacher Helper** document under the tab titled **The Choir Helper** to organize the results.
4. Use the spreadsheet to predict the results if the event had been simulated for 100 trials? 250 trials? Make a separate column for each and use formulas to make predictions.
5. Print the document.

Simulation

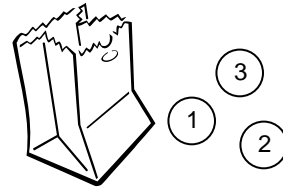
Use the following items to simulate an experiment.



A Coin



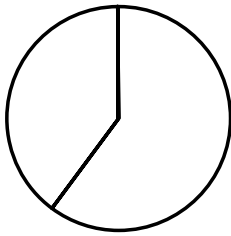
A Spinner



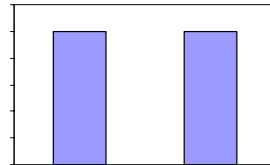
A Bag of 3 Marbles
Numbered 1-3

Which of the following graphs best represents the results of the experiment? Justify your reasoning.

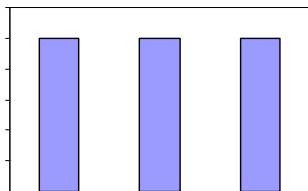
A.



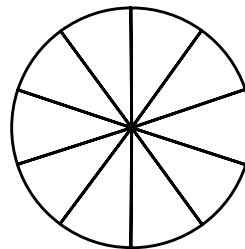
C.



B.



D.



1. Corbyn has a standard code of dress at his school. He can wear a white or green shirt with navy or khaki pants. He had 3 white shirts and 2 green shirts in his shirt drawer and 1 pair of navy pants and 3 pairs khaki pants in his pants drawer. What is the probability that Corbyn will reach in both drawers, without looking, and get a white shirt and navy pants?
 - A $\frac{17}{20}$
 - B $\frac{4}{9}$
 - C $\frac{3}{25}$
 - D $\frac{3}{20}$

2. A 6-sided number cube, a spinner divided into 3 equal parts labeled A, A, B, and a coin are being used for an experiment. Ozzie calculated the theoretical probability of an event where the number cube was rolled, coin tossed, and spinner spun. His calculation was $\frac{1}{3} \cdot \frac{1}{2} \cdot \frac{2}{3} = \frac{2}{18} = \frac{1}{9}$. For which of the following events did Ozzie calculate the probability?
 - A P(even number, head, B)
 - B P(1 or 2, head, A)
 - C P(prime number, tail, A)
 - D P(odd number, tail, A)

3. The letters of the word WINNER are cut apart and placed in a bag. A letter was drawn from the bag and a coin tossed at the same time. Results were recorded and the letter was placed back into the bag. Which of the following could NOT be used to represent the experimental data?
 - A Venn diagram
 - B Bar graph
 - C Circle graph
 - D Line Plot

4. A container of markers containing 3 red, 1 yellow, 2 green and 4 blue are placed at the map center in social studies. The rule is you can only use one marker at a time so that everyone will have a marker to use. What is the probability of reaching into the container without looking for each use and getting a red marker, a blue marker and then a yellow marker?
 - A $\frac{3}{250}$
 - B $\frac{12}{30}$
 - C $\frac{12}{100}$
 - D $\frac{8}{10}$

The Helper Dilemma

1. Use two TI-73 calculators to simulate the probability. Each student should hold a calculator. One calculator should be used to simulate the coin toss and the other used to simulate rolling a 10-sided number decahedron. Follow the instructions below to simulate the events with the calculators. Combine the results and place a tally mark in the frequency table below. Perform the experiment 40 times.

Coin Toss

APPS
7: Prob Sim
Press any key
2. Toss Coin
Toss (Window)

Roll Dice

APPS
7: Prob Sim
Press any key
1. Roll Dice
Set (Zoom)
Sides: 10
OK (Graph)
Roll (Window)

Combination	Tally	Frequency
Head, 1		
Head, 2		
Head, 3		
Head, 4		
Head, 5		
Head, 6		
Head, 7		
Head, 8		
Head, 9		
Head, 10		

Combination	Tally	Frequency
Tail, 1		
Tail, 2		
Tail, 3		
Tail, 4		
Tail, 5		
Tail, 6		
Tail, 7		
Tail, 8		
Tail, 9		
Tail, 10		

2. Graph the data using the instructions below. Sketch the resulting graph.

Graph Data

Enter the frequency
data in L2 of the LIST
feature.

2nd

Plot (Y=)

1: Plot 1

On

Type: Pie Chart

Graph

Sketch graph here.

3. Find the experimental probability for each.

Combination	Experimental Probability
Head, 1	
Head, 2	
Head, 3	
Head, 4	
Head, 5	
Head, 6	
Head, 7	
Head, 8	
Head, 9	
Head, 10	

Combination	Experimental Probability
Tail, 1	
Tail, 2	
Tail, 3	
Tail, 4	
Tail, 5	
Tail, 6	
Tail, 7	
Tail, 8	
Tail, 9	
Tail, 10	

(continue: The Helper Dilemma)

4. How were the experimental and theoretical probabilities the same? Explain.
5. How were the experimental and theoretical probabilities different? Explain.
6. If the fractions were changed to percents, what would you expect the percents to total and why?
7. If Mrs. Alexander has more students enrolled in her class, how can she change or modify her procedure for finding a helper?

Use the following information to answer questions 8-13.

In one particular class, Mrs. Alexander assigned combinations with Heads and a prime number to only boys and combinations with Tails to only girls.

8. What is the sample space for this class?
9. What can you conclude about this particular class? Explain.
10. Which gender is most likely to be the helper? Explain.
11. What is the probability of a girl being the helper? Explain.

(continue: The Helper Dilemma)

12. What is the probability of a boy being the helper? Explain.
13. How could Mrs. Alexander change or modify her procedure for finding a helper in this class to eliminate the extra combinations? Explain.

The Choir Helper

The choir teacher, Mr. Roberts, heard Mrs. Alexander in the teacher's lounge describe her method for assigning a helper. He thought the idea would be a big help in his classes. Since his choir classes sometimes have between 45 and 50 students and no students can be assigned the same "code," Mr. Roberts cannot use the coin and 10-sided number decahedron. Mrs. Alexander gave Mr. Roberts 8 different items that he could use to assign helpers in his class.

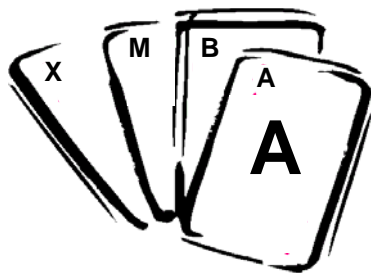


A Coin

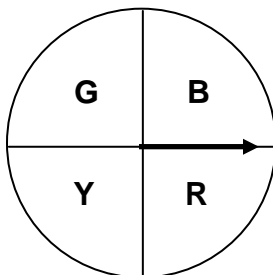


A Six-Sided Number Cube

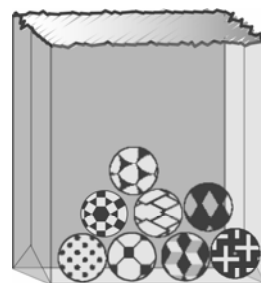
A 10-sided Number
Decahedron with the
numbers 1-10



A Set of Alphabet Cards A-Z

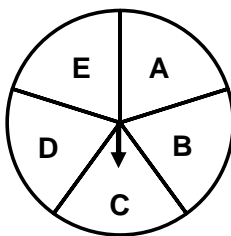


A Spinner



A Bag of 8 Different
Marbles

A 12-sided Number
Dodecahedron with the
numbers 1-12



A Spinner

(continue: The Choir Helper)

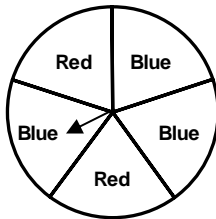
1. Help Mr. Roberts pair the items together that he can use to assign helpers. There will be 4 pairs. Justify your reasoning for each pair made and tell how many assignments for helpers could be made from each pair.
2. Choose one of the pairs of items above and describe how to simulate the event using the calculator.
3. Use the plan outlined in #2 to simulate the event for 50 trials. Create a table to record the results.
4. From the above results, predict the results if the event had been simulated for 100 trials.

Simulation

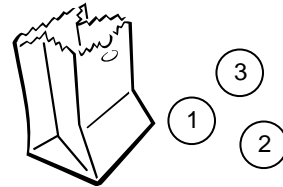
The following items are being used to simulate an experiment.



A Coin



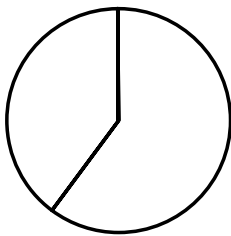
A Spinner



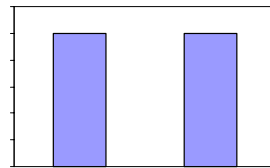
A Bag of 3 Marbles
Numbered 1-3

Which of the following graphs best represent the results of the experiment? Justify your reasoning

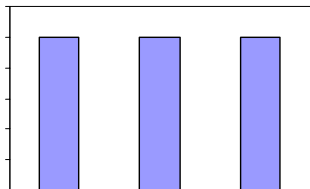
A.



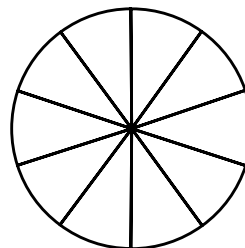
C.



B.



D.



1. Corbyn has a standard code of dress at his school. He can wear a white or green shirt with navy or khaki pants. He had 3 white shirts and 2 green shirts in his shirt drawer and 1 pair of navy pants and 3 pairs of khaki pants in his pants drawer. What is the probability that Corbyn will reach in both drawers, without looking, and get a white shirt and navy pants?
 - A $\frac{17}{20}$
 - B $\frac{4}{9}$
 - C $\frac{3}{25}$
 - D $\frac{3}{20}$

2. A 6-sided number cube, a spinner divided into 3 equal parts labeled A, A, B, and a coin are used for an experiment. Ozzie calculated the theoretical probability of an event where the number cube was rolled, coin tossed, and spinner spun. His calculation was $\frac{1}{3} \cdot \frac{1}{2} \cdot \frac{2}{3} = \frac{2}{18} = \frac{1}{9}$. For which of the following events did Ozzie calculate the probability?
 - A P(even number, head, B)
 - B P(1 or 2, head, A)
 - C P(prime number, tail, A)
 - D P(odd number, tail, A)

3. The letters of the word WINNER are cut apart and placed in a bag. A letter was drawn from the bag and a coin tossed at the same time. Results were recorded and the letter was placed back into the bag. Which of the following could NOT be used to represent the experimental data?
- A Venn diagram
 - B Bar graph
 - C Circle graph
 - D Line Plot
4. A container of markers containing 3 red, 1 yellow, 2 green and 4 blue are placed at the map center in social studies. The rule is you can only use one marker at a time so that everyone will have a marker to use. What is the probability of reaching into the container without looking for each use and getting a red marker, a blue marker and then a yellow marker?
- A $\frac{3}{250}$
 - B $\frac{12}{30}$
 - C $\frac{12}{100}$
 - D $\frac{8}{10}$

Box and Whisker Plot and Histogram Spreadsheet

Team Stats

BLUE TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

GREEN TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

RED TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

Box and Whisker Plot and Histogram Spreadsheet

Go Team!

Use the terms in the word bank below to complete the statements about the statistics and graphic representations in your spreadsheet. Each term can be used only once.

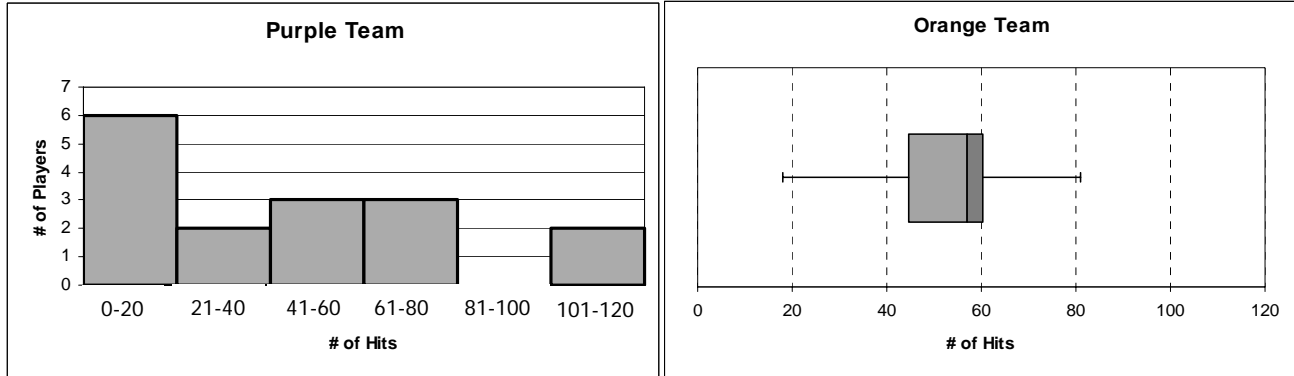
median	Red	mode	Blue
Green	range	outlier	mean

- The box and whisker plot of the _____ Team has the longest whisker. This is usually an indication that the set of data contains at least one _____.
- The _____ of the data is the central tendency for which the graphic representations give us the least information.
- The graphic representation with the smallest box (on the box and whisker plot) or with the middle bars significantly taller than the outer bars (on the histogram) for the _____ Team reflects the fact that the number of hits for many of the players on that team is close to the _____.
- While the data for each of the three teams is very different, the _____ number of hits is the same for all.
- The _____ and Red Teams both have players with more than 100 hits.
- The _____ of the number of hits was the smallest for the Green Team.

-
-
- If you had the opportunity to join any of these teams for next season, which would it be? Explain using statistics and/or the graphical representation(s) to justify your selection.

Purple or Orange? (hard copy of Microsoft Word file)

Below are graphical representations of the number of hits last season by members of the Purple and Orange teams.



Hard Hitting Harold (H^3 for short) has offers to join both the Purple team and the Orange team. H^3 had 100 hits last season.

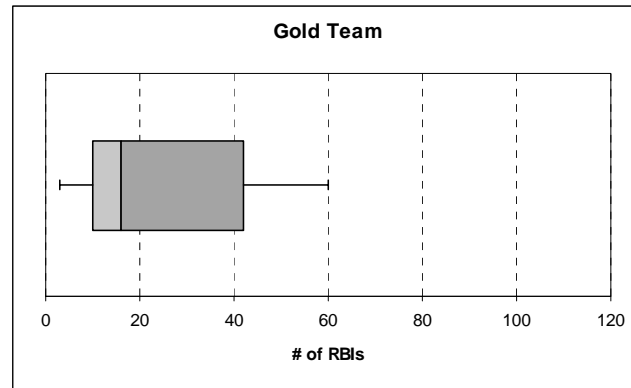
As a local sports reporter, you have received the task of analyzing the impact for each team, should H^3 join either the Purple or the Orange team. You must base your analysis on what you can gather from the graphical representations you have received.

Use either a word processor to create a newsletter or presentation software to create a slide show that will communicate your interpretations. Copy and paste the graphical representations into your newsletter or slide show and use the drawing tools to help make your points. Your newsletter or slide show should answer the following questions.

1. From the given graphical representations, what do you know about the spread of the data (numbers of hits per player) for the Purple team? for the Orange team? (Include a "discussion" of any clusters, gaps, and/or outliers.)
2. Should H^3 join the team, how would his number of hits (100) impact the current spread of the data for the Purple team? for the Orange team?
3. From the given graphical representations, what do you know about the current range, median, and mean number of hits for the Purple team? for the Orange team?
4. Should H^3 join the team, what would be the impact on the range, median, and mean number of hits for the Purple team? for the Orange team?
5. In your opinion, which team would benefit the most from having H^3 join their team?
6. As an added note or disclaimer, compare and contrast the amount and type of information you were able to get from the histogram versus the box and whisker plot when you addressed questions #1 and 3. What information might you get from a histogram that you would not get from a box and whisker plot? What information might you get from a box and whisker plot that you would not get from a histogram?

Pure Gold

You have just been hired as the manager of the Gold Team. A plot of the number of RBIs (runs batted in) of your team is shown below.

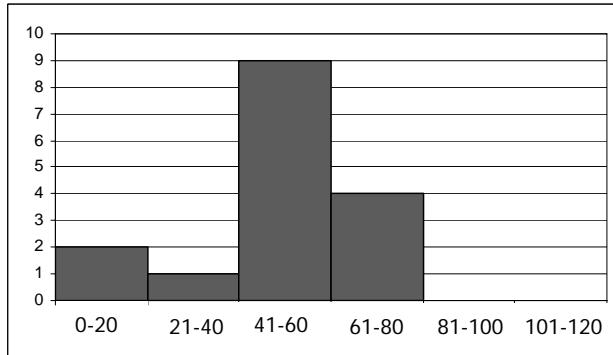


Your first job as team manager is to add 3 players (to replace 3 that retired) to the team. You must meet these goals.

- Do not increase the current range of RBIs.
 - Keep the various numbers of RBIs as clustered around the median as possible.
- a. Open the **PureGold** spreadsheet to see the RBI statistics on your current players and the players that are available to join your team.
 - b. Add 3 players to get the desired results.
 - c. Prepare a statement for the press that lists the RBIs of the players you added and describes the impact of these additions on each of the following statistical measures for your team.
 - d. Justify your statement by including the amount of change (if any) from the original statistics and original box and whisker plot, along with how these additions might benefit the team.
 - Range
 - Median
 - Mean

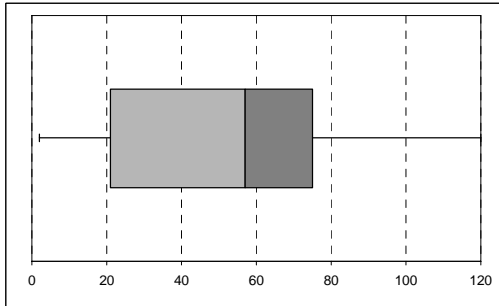
Box and Whisker Plot and Histogram Spreadsheet

1.

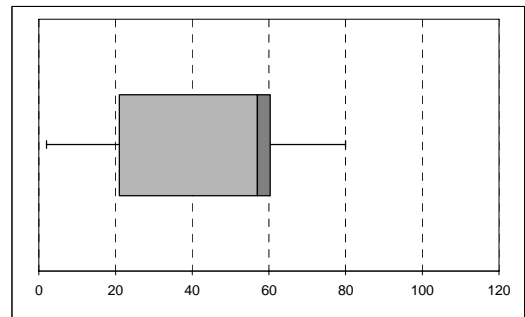


Which of the following box and whisker plots would contain data similar to the histogram above?

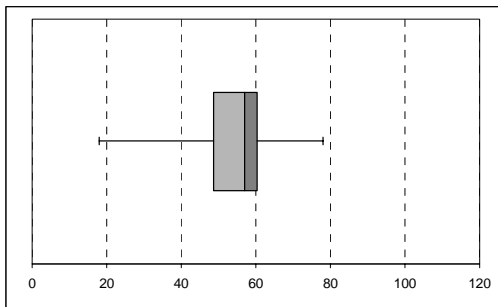
A.



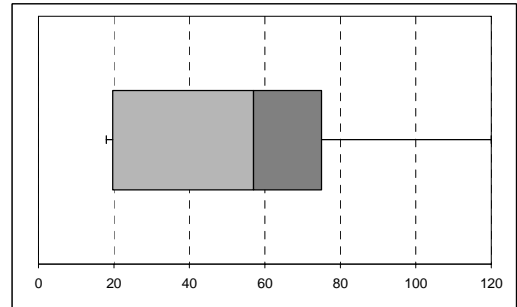
C.



B.



D.



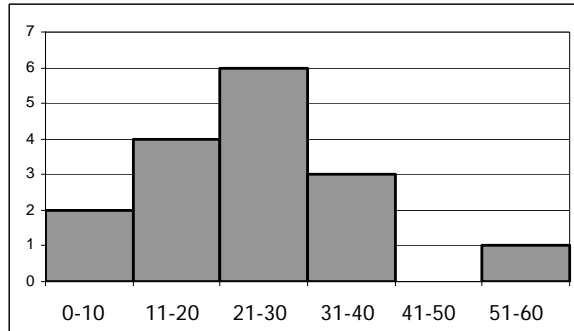
2. Which statistical measure is NOT evident on a box and whisker plot?

- A. range
- B. median
- C. mode
- D. all are evident

Box and Whisker Plot and Histogram Spreadsheet

Use the information below to answer questions 3 and 4.

A police officer sat on the side of the road and monitored the speed of the traffic with a radar gun. The histogram below represents the speeds of the first sixteen cars to go by.



3. What was the range in speed of the cars?
 - A. 60 mph
 - B. 6 mph
 - C. 50 mph
 - D. cannot be determined from the graph

4. If the road the officer was monitoring was a school zone (speed limit of 20 mph), how many of those cars were speeding?
 - A. 10
 - B. 40
 - C. 6
 - D. not enough information

Team Stats

BLUE TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

GREEN TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

RED TEAM

Minimum: _____ Mean: _____ 25th %-tile: _____
Maximum: _____ Mode: _____ Median: _____
Range: _____ 75th %-tile: _____

Sketch the histogram	Sketch the box and whisker plot
----------------------	---------------------------------

Go Team!

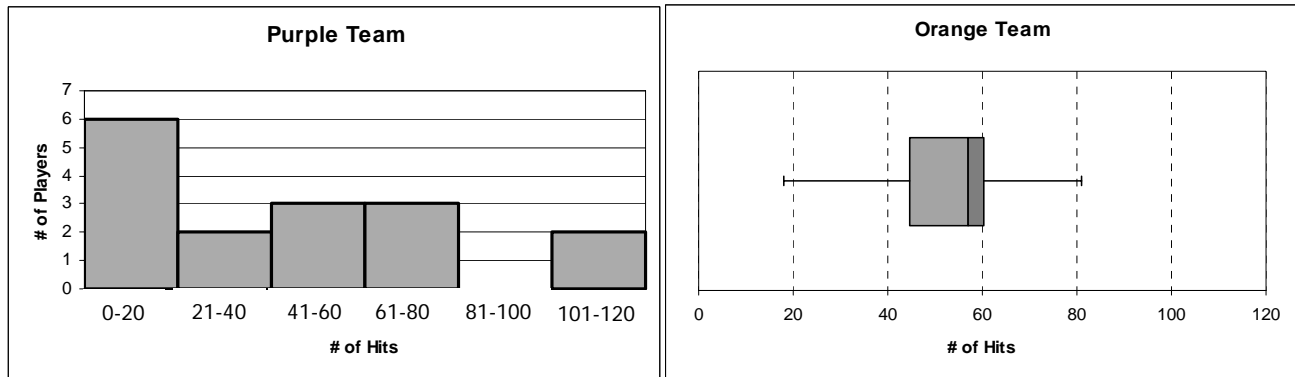
Use the terms in the word bank below to complete the statements about the statistics and graphic representations in your calculator. Each term can be used only once.

median	Red	mode	Blue
Green	range	outlier	mean

- The box and whisker plot of the _____ Team has the longest whisker. This is usually an indication that the set of data contains at least one _____.
 - The _____ of the data is the central tendency for which the graphic representations give us the least information.
 - The graphic representation with the smallest box (on the box and whisker plot) for the _____ Team reflect the fact that the number of hits for many of the players on that team is close to the _____.
 - While the data for each of the three teams is very different, the _____ number of hits was the same for all.
 - The _____ and Red Teams both have players with more than 100 hits.
 - The _____ of the number of hits was the smallest for the Green Team.
-
-
- If you got the choice to join any of these teams for next season, which would it be? Explain using statistics and/or the graphical representation(s) to justify your selection. (Go to the **Graphs** worksheet to make it easier to see all at the same time.)

Purple or Orange? (hard copy of Microsoft Word file)

Below are graphical representations of the number of hits last season by members of the Purple and Orange teams.



Hard Hitting Harold (H^3 for short) has offers to join either the Purple team or the Orange team. H^3 had 100 hits last season.

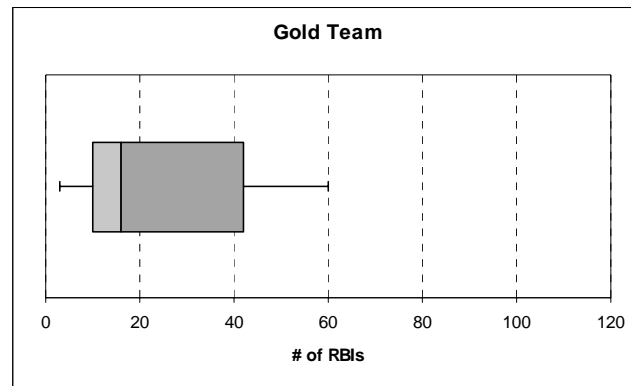
As a local sports reporter, you have been given the task of analyzing the impact for each team, should H^3 join either the Purple or the Orange team. You must base your analysis on what you can gather from the graphical representations you have been given.

Use either a word processor to create a newsletter or presentation software to create a slide show that will communicate your interpretations. Copy and paste the graphical representations into your newsletter or slide show and use the drawing tools to help make your points. Your newsletter or slide show should answer the following questions.

1. From the given graphical representations, what do you know about the spread of the data (numbers of hits per player) for the Purple team? for the Orange team? (Include a "discussion" of any clusters, gaps, and/or outliers.)
2. Should H^3 join the team, how would his number of hits (100) impact the current spread of the data for the Purple team? for the Orange team?
3. From the given graphical representations, what do you know about the current range, median, and mean number of hits for the Purple team? for the Orange team?
4. Should H^3 join the team, what would be the impact on the range, median, and mean number of hits for the Purple team? for the Orange team?
5. In your opinion, which team would benefit the most from having H^3 join their team?
6. As an added note or disclaimer, compare and contrast the amount and type of information you were able to get from the histogram versus the box and whisker plot when you addressed questions #1 and 3. What information might you get from a histogram that you would not get from a box and whisker plot? What information might you get from a box and whisker plot that you would not get from a histogram?

Pure Gold

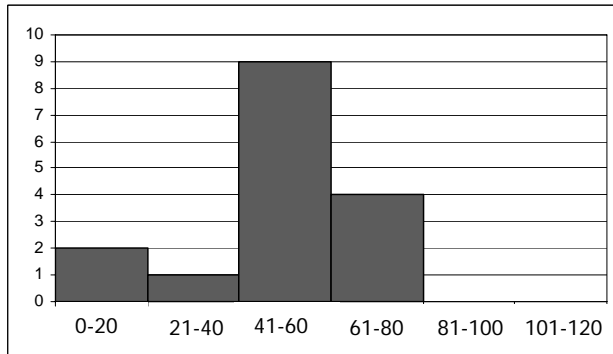
You have just been hired to take over as manager of the Gold Team. Currently, a plot of the number of RBIs (runs batted in) by the members of your team is shown below.



Your first task will be to add 3 players (to replace 3 that retired) to the team to meet these goals.

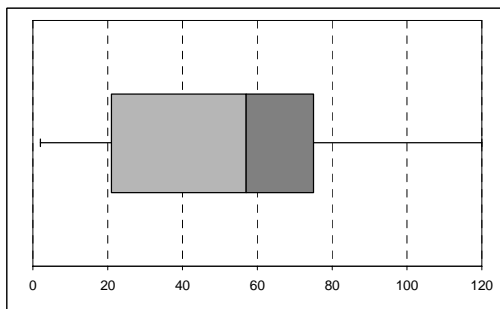
- Do not increase the current range of RBIs.
 - Keep the various numbers of RBIs as clustered around the median as possible.
- a. Input the RBIs for the players currently on the team in L1.
3, 15, 8, 20, 45, 16, 39, 10, 10, 42, 60, 55, 5
 - b. Add 3 players to get the desired results. The RBIs for the players available to join your team are 65, 18, 22, 6, and 30.
 - c. Prepare a statement for the press that lists the RBIs of the players you added and describes the impact of these additions on each of the following statistical measures for your team. Justify your statement by including the amount of change (if any) from the original statistics and original box and whisker plot, along with how these additions might benefit the team.
 - Range
 - Median
 - Mean

1.

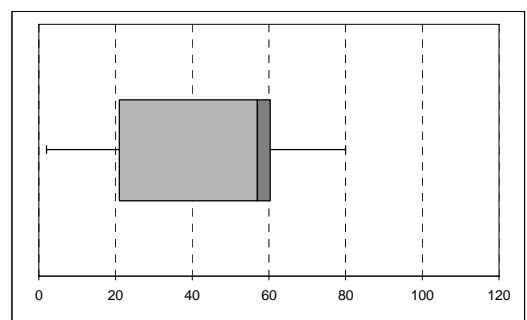


Which of the following box and whisker plots would contain data similar to the histogram above?

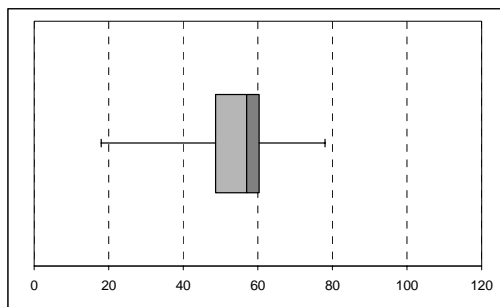
A.



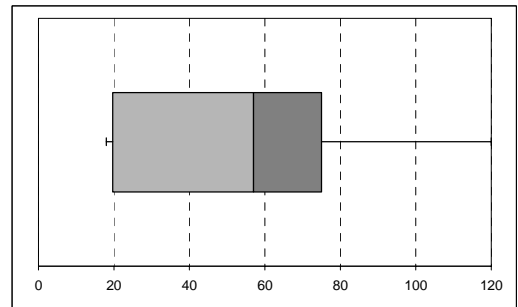
C.



B.



D.

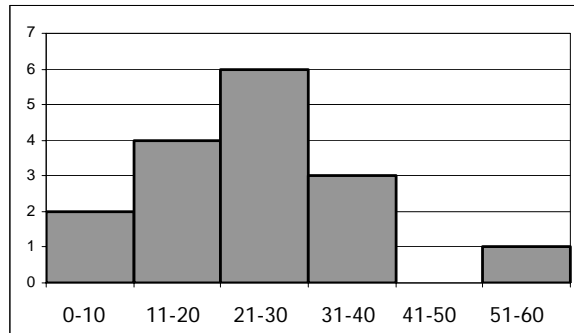


2. Which statistical measure is **not** evident on a box and whisker plot?

- A. range
- B. median
- C. mode
- D. all are evident

Use the following graph to answer questions 3 and 4.

A police officer sat on the side of the road and monitored the speed of the traffic with a radar gun. The histogram below represents the speeds of the first sixteen cars to go by.



3. What was the range in speed of the cars?
 - A. 60 mph
 - B. 6 mph
 - C. 50 mph
 - D. not enough information

4. If the road the officer was monitoring was a school zone (speed limit of 20 mph), how many of those cars were speeding?
 - A. 10
 - B. 40
 - C. 6
 - D. not enough information

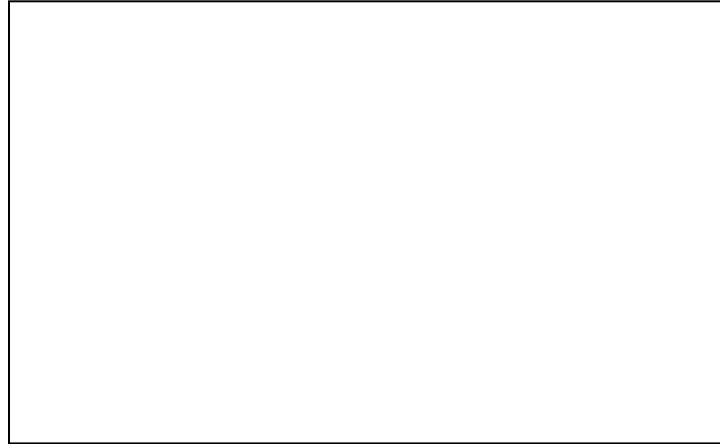
Student Name(s) _____ Date _____

Round and Round

Open the **RoundandRound** spreadsheet.

- A. Input your class data from Transparency 2. (Use the table that starts in row 6.)

Sketch the scatterplot that resulted from entering class data.



- B. For each statement, choose the scatterplot(s) that best represents the situation.

_____ 1. After the 1st attempt, most students were able to increase the number of revolutions on their 2nd attempt.

_____ 2. After the 1st attempt, most students made fewer revolutions on their 2nd attempt.

_____ 3. The number of revolutions on the 1st attempt is about the same as the number of revolutions on the 2nd attempt.

_____ 4. There is not a strong relationship between the number of revolutions made in the two attempts.

_____ 5. Most students did considerably better on their 2nd attempt than on their 1st attempt.

_____ 6. Based on the data you have from your class, which scatterplot would look most like yours? Explain.

Scatterplot Lesson Spreadsheet

7. Now that you have analyzed possible scenarios for scatterplots A, B, and C, write a statement that describes the relationship between the 1st attempt and 2nd attempt for your class.

8. Use formulas to calculate the mean, median, and mode of the data for the 1st attempt and for the 2nd attempt. (Use the table in rows 50-53.) Record the results below.

	1st attempt	2nd attempt
mean		
median		
mode		

9. Which measure of central tendency best describes the number of revolutions made on the 1st attempt and 2nd attempt? Explain your choice.

Student Name(s) _____ Date _____

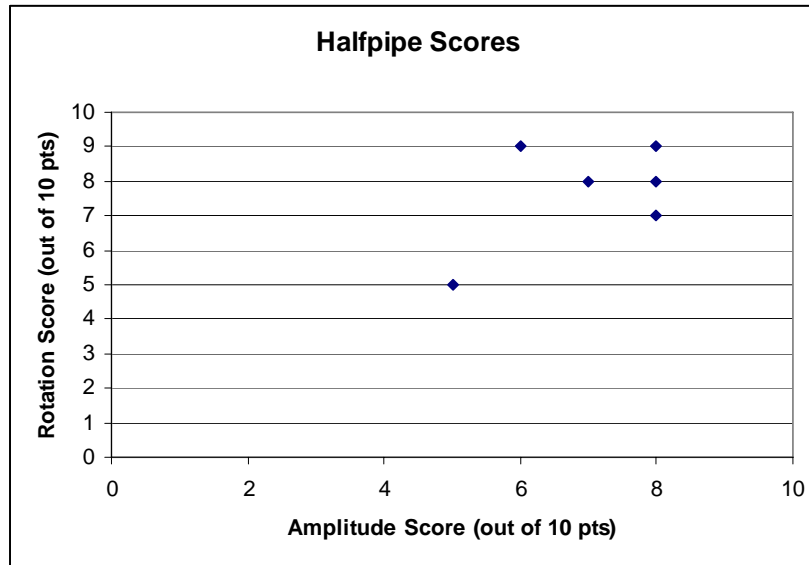
What's In A Name?

Access the website <http://www.ssa.gov/OACT/babynames/>. In an earlier activity we compared the ranking of the top ten names of your parents' generation (1965) to the ranking of those names today to answer the question about how the popularity of names stands the test of time.

- a. Consider the following set of questions.
How has the number of people having the most popular boy name changed over the last 10 years? How many people do you predict might have the most popular name in 2010?
- b. Open the **WhatName** spreadsheet and input the data to create a scatterplot.
- c. Draw a trendline if appropriate.
- d. Calculate the mean, median, and range of your data.
- e. Respond to the questions in part a. Justify your answers using the scatterplot, trendline, and/or statistical measurements to support your conclusions.

Student Name(s)_____ Date_____

- The scatterplot below compares the score for amplitude (height) to the score for rotations (spins and flips) for six skateboarders at the weekend meet.

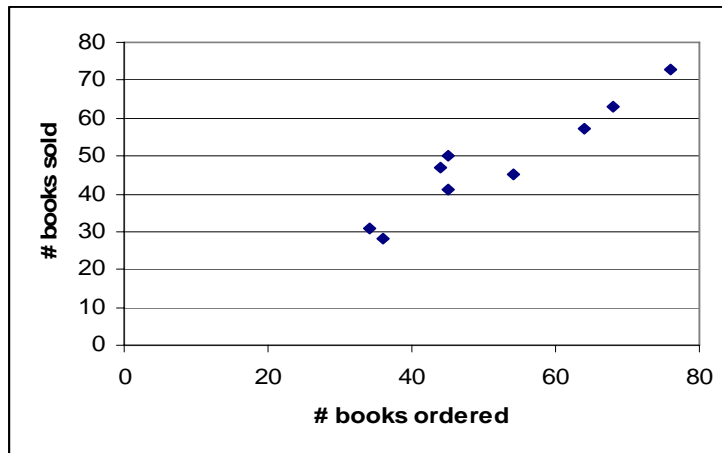


Which of the following statements would be supported by the scatterplot?

- As the score for amplitude increases, the score for rotations tends to increase.
 - As the score for amplitude increases, the score for rotations tends to decrease.
 - As the score for rotations increases, the score for amplitude tends to decrease.
 - The score for rotations tends to be the same as the score for amplitude.
- Which relationship, when graphed on a scatterplot, would NOT be described as having a positive trend?
 - The number of fans in a football stadium compared to the noise level of the stadium.
 - The amount of money earned babysitting compared to the number of hours spent babysitting.
 - The number of miles driven compared to the amount of gasoline in the tank.
 - All of the above relationships have a positive trend.

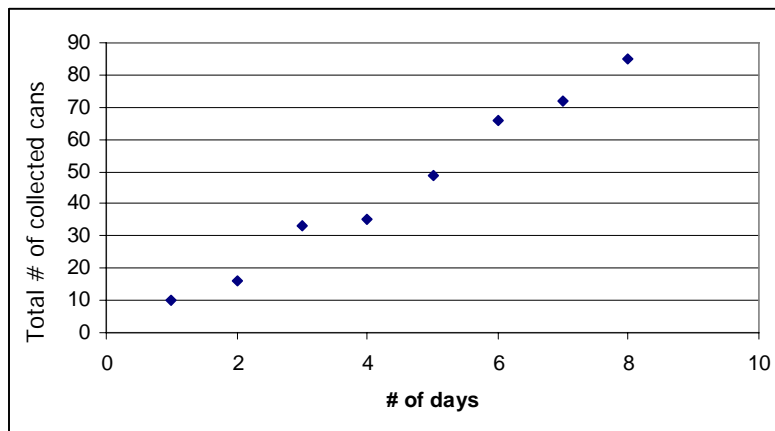
Scatterplot Lesson Spreadsheet

3. The following scatterplot compares the number of books ordered through the school fund raiser to the number of books that were sold.



If the mean number of books ordered is about 52, estimate the mean number of books sold based on the trends in data in the scatterplot.

- A. greater than 55
 - B. between 50 and 55
 - C. between 45 and 50
 - D. less than 40
4. Ms. Smith's class is recording data about an aluminum can recycling project as shown in the scatterplot below.



At this rate, about how many days will it take to collect 150 cans?

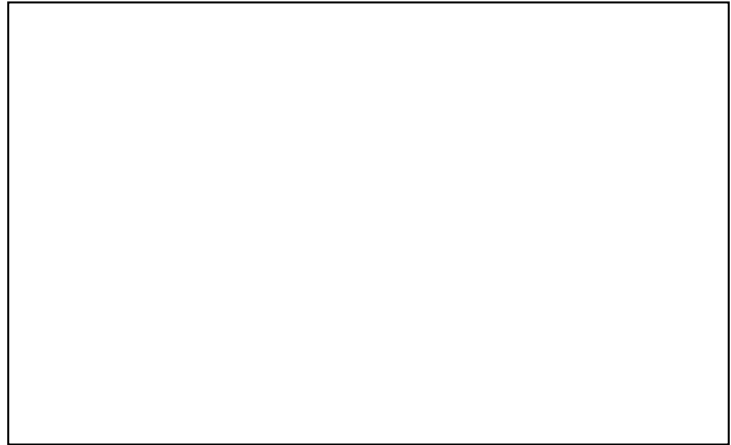
- A. 150 days
- B. 20 days
- C. 15 days
- D. 10 days

Student Name(s)_____ Date_____

Round and Round

A. Input your class data from Transparency 2. (Use the table that starts in row 6.)

Sketch the resulting scatterplot.



B. For each statement, choose the scatterplot(s) that best represents the situation.

_____ 1. After the 1st attempt, most students were able to increase the number of revolutions on their 2nd attempt.

_____ 2. After the 1st attempt, most students made fewer revolutions on their 2nd attempt.

_____ 3. The number of revolutions on the 1st attempt is about the same as the number of revolutions on the 2nd attempt.

_____ 4. There is not a strong relationship between the number of revolutions made in the two attempts.

_____ 5. Most students did considerably better on their 2nd attempt than on their 1st attempt.

_____ 6. Based on the data you have from your class, which scatterplot would look most like yours? Explain.

Student Name(s)_____ Date_____

Round and Round (continued)

7. Now that you have analyzed possible scenarios for scatterplots A, B, and C, write a statement that describes the relationship between the 1st attempt and 2nd attempt for your class.

8. Use formulas to calculate the mean, median, and mode of the data for the 1st attempt and for the 2nd attempt. Record the results below.

	1st attempt	2nd attempt
mean		
median		
mode		

9. Which measure of central tendency best describes the number of revolutions made on the 1st attempt and 2nd attempt? Explain your choice.

Baby Names

(based on data from Social Security card applications)

Given: Some baby names are more popular (occur more often) than others. The list of the most popular baby names changes from year to year. While some names are used less over time, others remain popular.

Question: Over the last 40 years, do you think boy names or girl names have been less "trendy"? In other words, do you think children in your generation are more likely to have the same names as adults in your parents' generation if they are boys or girls? Today you will research to compare the ranking of the most popular names in the year 1965 to the ranking of those names in the year 2004 (a span of 40 years).

Directions:

1. Go to the website below to determine the top 10 names for boys and girls in the year 1965.
2. Record the names missing in the tables below.
3. Look up ranks missing for each name for the year 2004 and add that data to the chart. (The database lists the top 1000 names. Use a rank of 1001 if a name is not included.)

<http://www.ssa.gov/OACT/babynames/>

BOYS		
Name	1965 Rank	2004 Rank
	1	
John	2	18
David	3	
James	4	17
	5	
William	6	
	7	113
Richard	8	
Thomas	9	37
Jeffrey	10	

GIRLS		
Name	1965 Rank	2004 Rank
	1	
Mary	2	
	3	154
Kimberly	4	
Susan	5	565
Patricia	6	
Donna	7	781
	8	
Cynthia	9	
Angela	10	105

Baby Names

4. Looking at the data in the table, what do you notice about the change in rank of the top 10 names for boys versus the change in rank of the top 10 names for girls over the last 40 years?
5. Looking at the data in the scatterplot, explain how any observations you made from the table in #4 are reflected in the scatterplot.
6. Calculate the mean rank of the given boy names for 2004 and girl names for 2004. How many boy names and how many girl names were more popular than the mean rank?
7. Calculate the median rank of the given boy names for 2004 and girl names for 2004. How many boy names and how many girl names were more popular than the median rank?
8. Calculate the range in the rankings of the given boy names for 2004 and girl names for 2004. How does the range value for the boys compare to that of the girls? What does this mean?
9. Determine whether the mean or median best describes the data. Position the lines below the scatterplot (solid for boys and dashed for girls) on the scatterplot to represent these measurements. What does the position of the lines on the scatterplot emphasize about the relationship between how the popularity of the top ten names for boys and girls has changed from your parents' generation to now?
10. Describe the relationship between the points on the scatterplot and the lines you drew in #9 for the boy names and the girl names. What does this mean?

What's In A Name?

1. Access the website <http://www.ssa.gov/OACT/babynames/> . In an earlier activity we compared the ranking of the top ten names of your parents' generation (1965) to the ranking of those names today to answer the question about how the popularity of names stands the test of time.
 - a. Consider the following set of questions.
How has the number of people having the most popular boy name changed over the last 10 years? How many people do you predict might have the most popular name in 2010?
 - b. Fill in the table using the website.

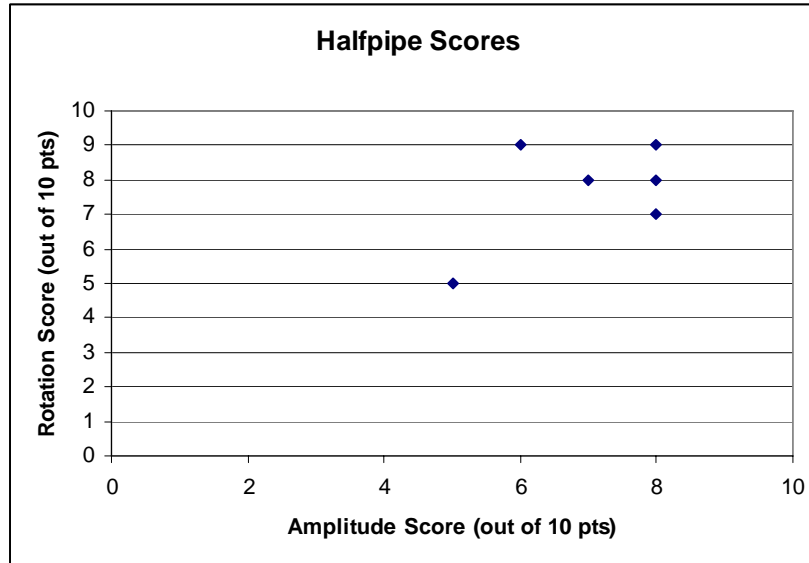
?	?

- c. Use the TI-73 to create a scatterplot.
- d. Draw a trendline if appropriate.
- e. Calculate the mean, median, and range of your data.

Minimum	
Maximum	
Mean (average)	
Median	
Mode	
Range	

- f. Respond to the questions in part a. Justify your answers using the scatterplot, trendline, and/or statistical measurements to support your conclusions.

1. The scatterplot below compares the score for amplitude (height) to the score for rotations (spins and flips) for six skateboarders at the weekend meet.

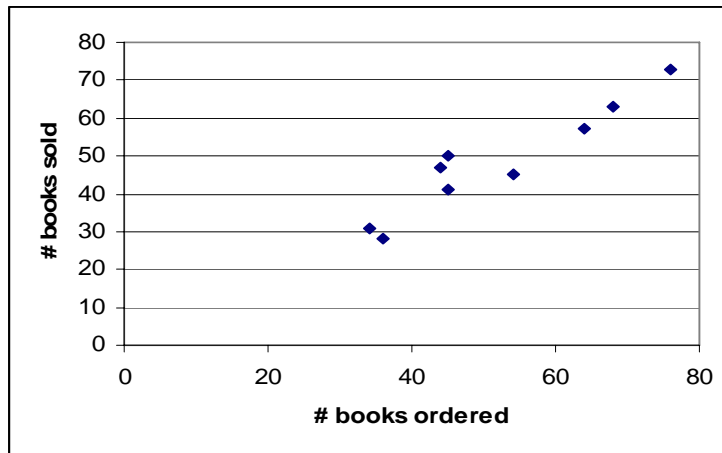


Which of the following statements would be supported by the scatterplot?

- A. As the score for amplitude increases, the score for rotations tends to increase.
 - B. As the score for amplitude increases, the score for rotations tends to decrease.
 - C. As the score for rotations increases, the score for amplitude tends to decrease.
 - D. The score for rotations tends to be the same as the score for amplitude.
2. Which relationship, when graphed on a scatterplot, would **not** be described as having a positive trend?
- A. Height of a student compared to his/her weight
 - B. The amount of money earned babysitting compared to the number of hours spent babysitting
 - C. The number of miles driven compared to the amount of gas in the tank of the car
 - D. All of the above relationships have a positive trend.

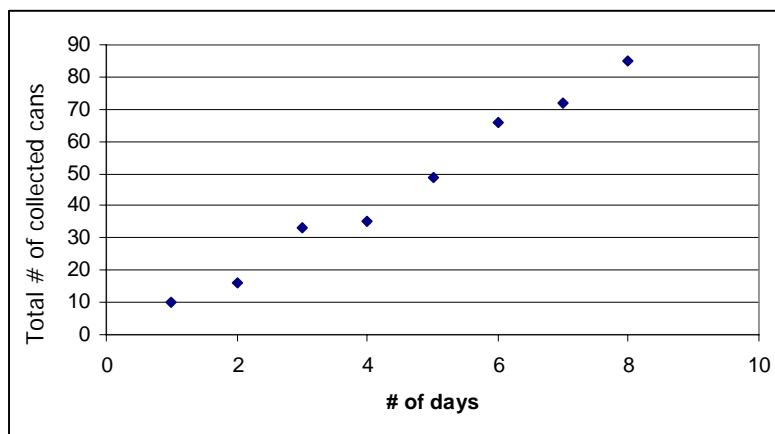
Scatterplot Lesson TI-73

3. The following scatterplot compares the number of books ordered through the school fund raiser to the number of books that were actually paid for and sold.



If the mean(average) number of books ordered is about 52, estimate the mean(average) number of books sold based on the trends in data in the scatterplot.

- A. greater than 49
B. between 47 and 49
C. between 45 and 47
D. less than 45
4. Ms. Smith's class is collecting aluminum cans for a recycling project as shown in the scatterplot below.



At this rate, about how many days will it take to collect 150 cans?

- A. 15 days
B. 10 days
C. 20 days
D. 150 days