

4.2 Data Distributions

NOTES

ALGEBRA

Write your
questions here!



Data Distribution: _____

Dotplots _____

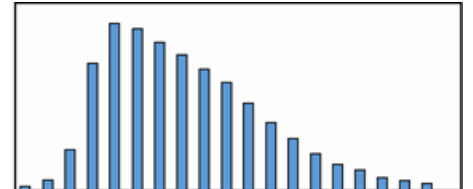
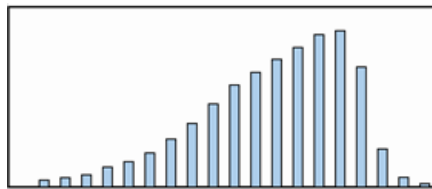
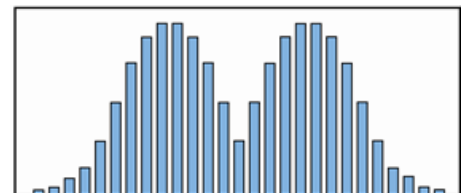
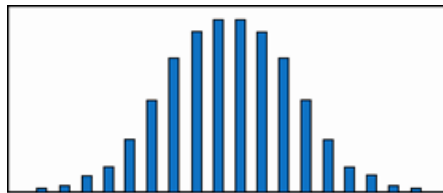
Histograms _____



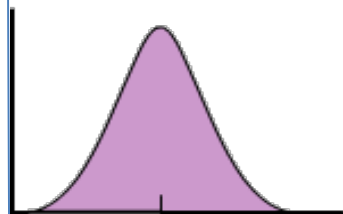
Find the **mean** number of siblings:

Find the **median** number of siblings:

Types of distributions:



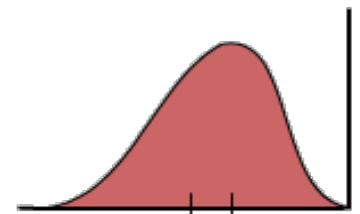
The mean on the move: Compare the mean vs. median of a skewed data set.



Mean = Median



Median Mean



Mean Median

For skewed data, it is better to use the _____, rather than the _____,
to describe the center of the data.

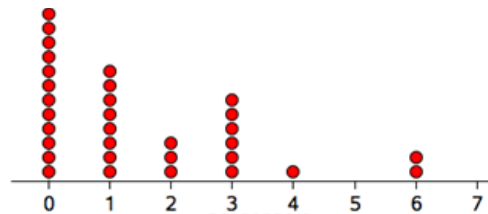
Tell whether the following distributions are more likely to be skewed left, symmetrical or skewed right:

I. Age of death in a city

II. Foot Size of 30 year old women

Estimate the mean and median from the graph:

III.



IV.



Stemplots: the stem repeats its value and each “leaf” represents a data point

Stemplot of ages in church choir

```

1 | 5 5 6
2 | 0 3 3 4 6 6 8
3 | 1 4 6
4 | 3 3
    
```

Key:

3|1 represents 31 yrs old

Length of worms caught (cm)

```

3 | 0
4 | 5
5 |
6 | 2
7 | 1 7
8 | 2 4 4 5
9 | 0 1 2 2 3 5 5 6 9
10| 0 0 0
    
```

Key:

6|2 represents 6.2 cm

Outlier: _____

Explain the effect an outlier would have on the following:

I. Mean

II. Median

III. Standard Deviation

SUMMARY:

Now,
summarize
your notes
here!

SMP #3

4.2 Data Distributions

PRACTICE

- Fill in each blank with *always*, *sometimes*, or *never* to make a true statement.
 - The median and the mean of a set are _____ equal.
 - An outlier will _____ increase the standard deviation of a set.
 - If a distribution is skewed right, the median will _____ be greater than the mean.
 - If you add two outliers to a data set, the mean will _____ change.
 - If you add two outliers to a data set, the median will _____ change.
- Use the stemplot to fill in the table.

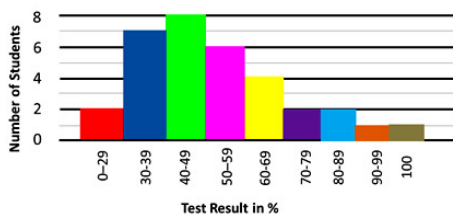
Chapter 6 Test Scores

Class A		Class B	
Stem	Leaves	Stem	Leaves
4	9	4	
5	5, 7	5	2, 7
6	6, 6, 8	6	2, 5, 8, 8
7	2, 8, 8, 8	7	2, 5
8	4, 5, 7, 8, 8	8	1, 4, 5, 7, 7
9	1, 5, 5	9	0, 1, 1, 5, 5, 5
10	0, 0	10	0

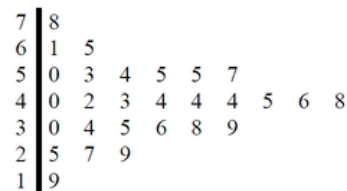
Chapter 6 Test Scores		
	Class A	Class B
Mean		
Median		
Standard Deviation		

Estimate the mean and median of the distribution. Then, tell whether the distribution is skewed left, skewed right, or symmetric.

3. Algebra Test Results – Class B – Low Scoring

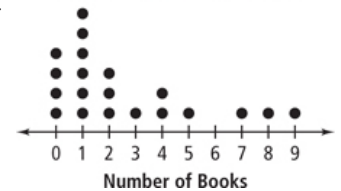


4. Haircut Prices



KEY: 1|9 represents \$19

5. Books Read Last Summer



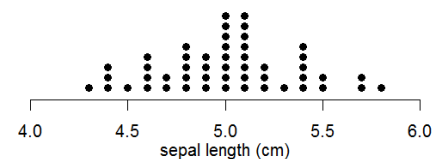
6. Price of Books

Mean = \$10.8
Median = \$12.5
Standard Deviation = 2.8

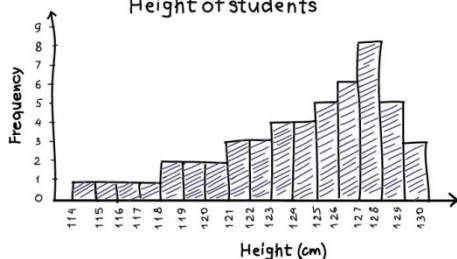
7. Cost of Meal

Median = \$15.6
Mean = \$20.2
Standard Deviation = 5.6

8.



9. Height of students

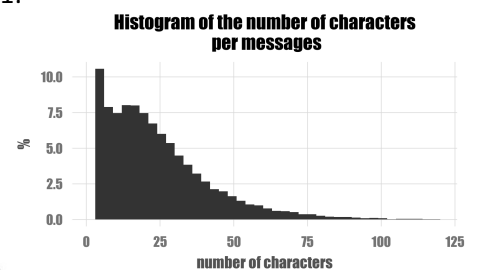


10.

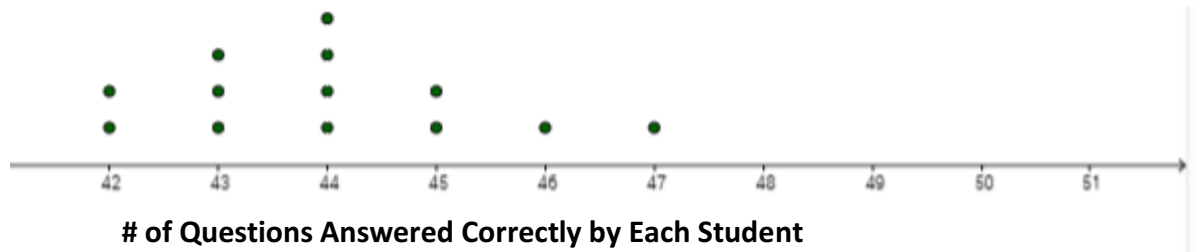
Stems	Leaves
150	1
140	
130	
120	2 6
110	4 5 7 9
100	1 2 2 2 5 7 9 9
90	0 2 3 4 4 5 7 8 9 9
80	1 1 4 7 8

Key : 110 | 7 represents an IQ score of 117

11.



12. At one time, Mr. Bean taught history. One, day Mr. Bean decided to give a 55-question test on the ***History of Midwestern Square Dancing***. Unfortunately, a large part of Mr Bean's class was absent, yet he decided to give the test anyway. Interested in the results, he counted the number of questions each student got correct. Below is a dotplot of the distribution:



- Describe the shape of the distribution. Do you expect the mean or the median to be higher? Explain.
- Find each to confirm your thoughts → Mean = _____ Median = _____
- The next class, 8 of the 9 absent students came back to school and took the test. The number of correct questions for those additional 8 students were: 49, 42, 43, 42, 42, 43, 42, 49. Plot these additional scores on the dotplot above.
- Did adding these values change the shape of the distribution? Explain.
- Find the new mean and median of the data set including the absent students' scores. Do your findings support your answer to (d.) above? Why or why not?
- Mr. Bean's last absent student, Abby, finally comes back to school. Abby is from Nebraska and is well-versed in ***Midwestern Square Dancing***. In fact, Abby gets all 55 questions correct and Bean quickly adds her score to his distribution! Which measure will Abby's score affect the most: the mean, or the median?
- Do you believe Abby's score is an outlier? Explain.

13. Multiply: $(2x - 5)^2$

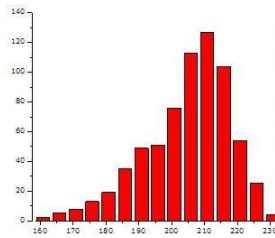
14. Solve the following equation for w: $\frac{rt}{w} = a - b$

15. Solve the following system:
$$\begin{cases} -x + y = -4 \\ 2x + 2y = -12 \end{cases}$$

1. Tell if each data set is skewed left, skewed right or symmetric.

Mean = 45.7
Median = 39.2
Standard Deviation = 3.8

Data Set #1



Data Set #2

pulse rate

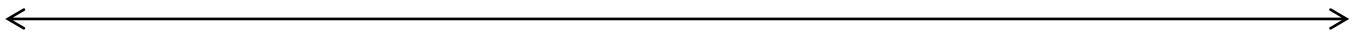
6	8 8 8 9
7	0 1 1 4 6 6 8
8	2 6 8 8
9	0 6
10	4
11	0

Key:
7|1 means 71 bpm

Data Set #3

2. The following data represents the salary (rounded to the nearest millions of dollars) for each player on the 2017-2018 Golden State Warriors : { 0, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 3, 5, 8, 15, 16, 18, 25, 35 }

- a. Create a dotplot of the salaries. Be sure to label the axis and include units.



- b. Describe the shape of the distribution of salaries.

- c. Find the mean and the median of the salaries. Mean = _____ Median = _____

- d. Which data point do you think represents the best player on the team? What is unusual about this point?

A1CC 4.2 EXIT TICKET –

You are given an incomplete set of 10 scores with the following clues:

Clue #1: No two scores repeat.

Clue #3: The mean is an integer.

Clue #2: The range is 25

Clue #4: The distribution is skewed right.

4

8

9

12