4.2 Data Distributions

PRACTICE

1. Fill in each blank with ***always***, ***sometimes***, or ***never*** to make a true statement.

   a. The median and the mean of a set are _____ equal.

   b. An outlier will _____ increase the standard deviation of a set.

   c. If a distribution is skewed right, the median will _____ be greater than the mean.

   d. If you add two outliers to a data set, the mean will _____ change.

   e. If you add two outliers to a data set, the median will _____ change.

2. Use the stemplot to fill in the table.

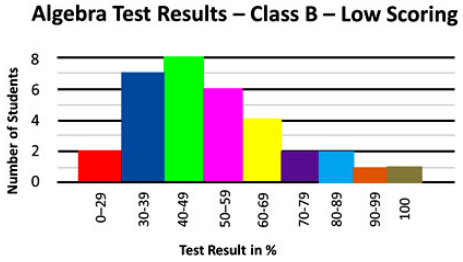
Chapter 6 Test Scores

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.



4.

Haircut Prices

7	8
6	1 5
5	0 3 4 5 5 7
4	0 2 3 4 4 4 5 6 8
3	0 4 5 6 8 9
2	5 7 9
1	9

KEY: 1|9 represents $19

5.

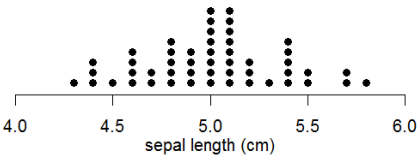
6. **Price of Books**

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

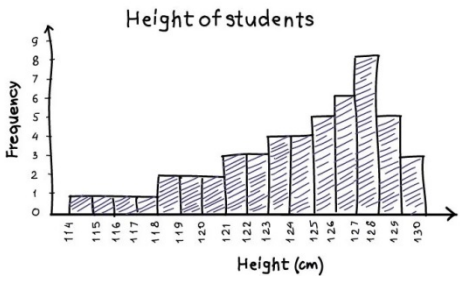
7. **Cost of Meal**

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

8.



9.

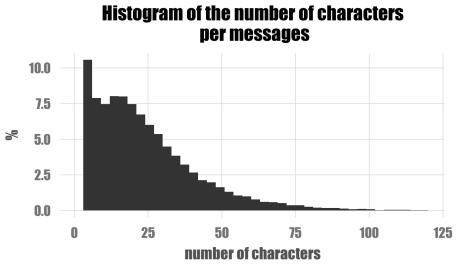


10.

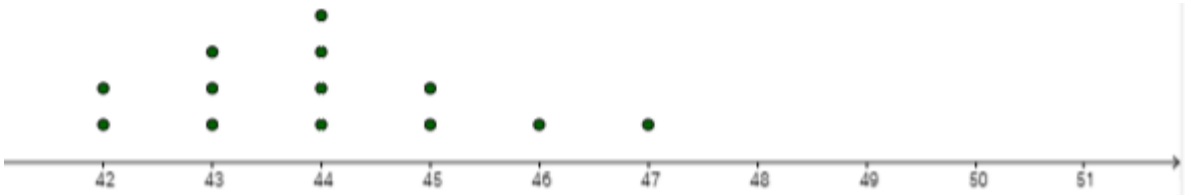
Stems	Leaves
150	1
140	
130	
120	2 6
110	4 5 7 9
100	1 2 2 2 5 7 9 9
90	0 2 3 4 4 5 7 8 9 9
80	1 1 4 7 8

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:



# of Questions Answered Correctly by Each Student

a. Describe the shape of the distribution. Do you expect the mean or the median to be higher? Explain.

b. Find each to confirm your thoughts → Mean = _____ Median = _____

c. 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.

d. Did adding these values change the shape of the distribution? Explain.

e. 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?

f. 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?

g. 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: $\begin{cases} -x + y = -4 \\ 2x + 2y = -12 \end{cases}$