

### Warmup:

Consider the following data set.

5 5 7 8 8 8 8 9 9 10 10 11 13 14

Find the following:

1. Mean: 8.93

2. Standard deviation: 2.49

3. Range: 9

4. Median: 8.5

5. Q1: 8

6. Q3: 10

7. IQR: 2

8. 5-number summary: 5, 8, 8.5, 10, 14

9. Mode: 8

Are there any outliers? If so, which data point(s)? How can you tell?

Outliers  $1.5 \cdot \text{IQR}$

$$1.5 \cdot 2 = 3$$

14 is outlier

~~8~~  $Q_1 - 1.5 \text{IQR} = 8 - 3 = 5$

$$Q_3 + 1.5 \text{IQR} = 10 + 3 = 13$$

$$\bar{X} = \text{Mean}$$

$$\sigma = \text{Standard Deviation}$$

$$\text{Med} = \text{Median}$$

$$\text{IQR} = Q_3 - Q_1$$

$$5 \# \text{ summary } \text{min}, Q_1, \text{Med}, Q_3, \text{Max}$$

# Univariate Data Practice

Use the data set to answer the questions below.

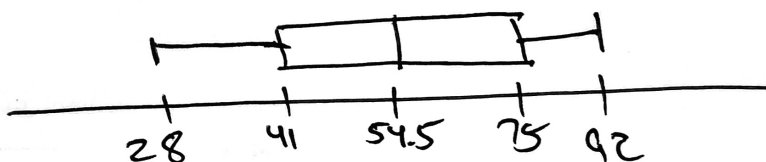
37   62   45   51   28   83   64   58  
49   73   77   37   84   51   33   92

1. Find the following values:

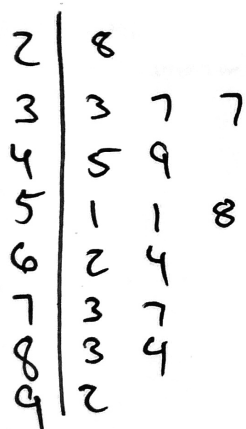
- a. mean 57.75      b. median 54.5      c. mode 37, 51  
 d. range 64 <sup>92-28</sup>      e. Q1 41      f. Q3 75  
 g. IQR 34      h. outlier(s) None      i. standard deviation 19.11

2. Write the 5-number summary using the appropriate format. 28, 41, 54.5, 75, 92

3. Make a modified box plot. Be sure to make an appropriate scale and label the important data points.

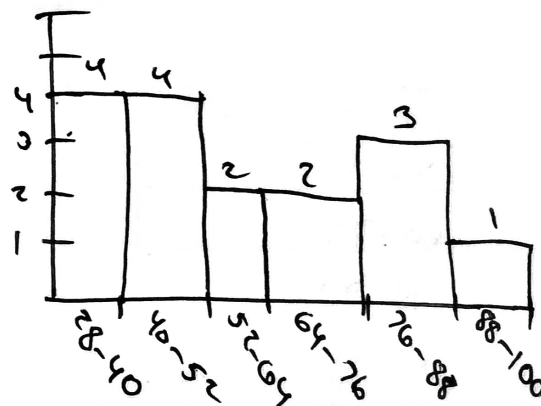


4. Create a stem & leaf plot.



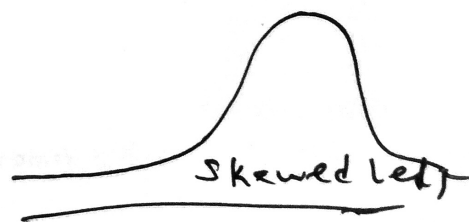
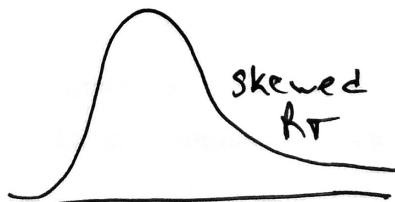
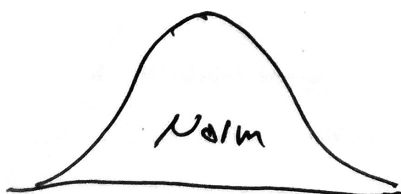
$2 | 5 = 25$

5. Make a histogram with an x-scale of 12



6. What is the shape of the distribution? Skewed RT

7. What is the best measure of center? Why?



8. If you are making a histogram that has one bin from 40 – 50 and one bin from 50 – 60, in which bin should you include a data point of 50?

50-60

Below is a set of test grades for Mr. Sander's class:

86 97 67 81 93 77 89 78 51 90 79 80 87 72 98

Mean: 81.67	Minimum: 51	Maximum: 98
Q1: 77	Q3: 90	Range: 47
IQR: 13	Median: 81	Standard Deviation: 11.82
Outliers: <sup>19.5</sup> 51		

Stem and Leaf Plot:  $51, 67, 72, 77, 78, 79, 80, 81, 86, 87, 89, 90, 93, 97, 98$  Modified Box Plot:

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

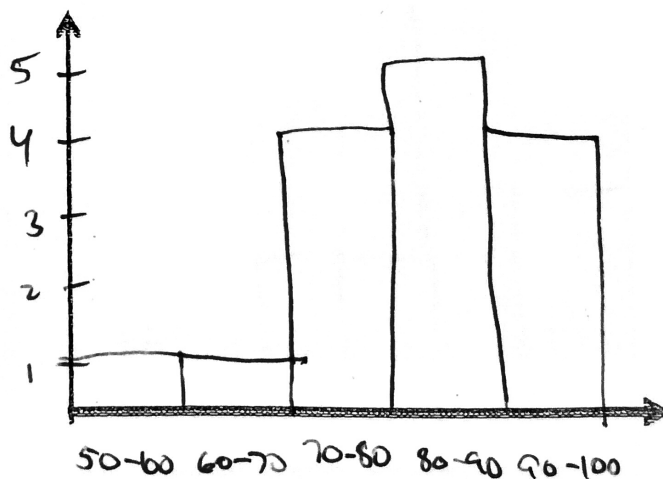
$5 | 3 = 53$



Frequency Table:

Grade	Frequency
50-60	1
60-70	1
70-80	4
80-90	5
90-100	4

Histogram: (Include Labels)



Is the data in the histogram skewed positively, negatively, or is it symmetrical? negatively skewed