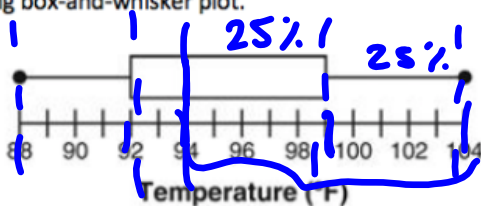


What is the correlation coefficient of the data?
Round to the nearest hundredth. What does it tell you about the data?

Hours of exercise	Weight loss (pounds)
1.3	0.5
3	2.8
5	3.5
2	2.5
4	3

Most Missed on HW

4. Sarita recorded the high temperatures in her town for the month of July and used her data to make the following box-and-whisker plot.

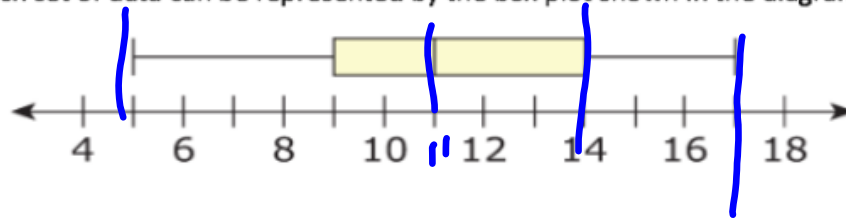


Which statement must be true?

- A. The mean temperature of the month was 94° .
 B. At least half of the temperatures were 94° or greater.
 C. There were fewer temperatures between 92° and 94° than between 94° and 99° .
 D. There were more temperatures between 99° and 104° than between 88° and 92° .

Most Missed on HW

5. Which set of data can be represented by the box plot shown in the diagram below?



- A. 5, 5, 10, 11, 11, 12, 16, 17
 B. 5, 8, 10, 10, 12, 13, 13, 17
 C. 5, 9, 9, 10, 11, 14, 14, 17
 D. 5, 9, 9, 9, 13, 13, 15, 17

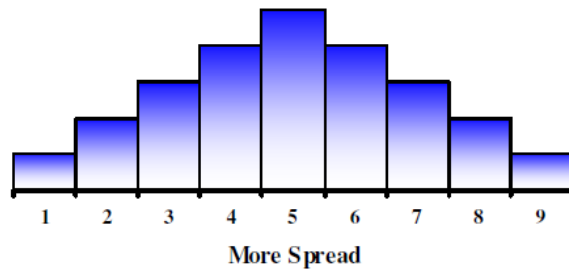
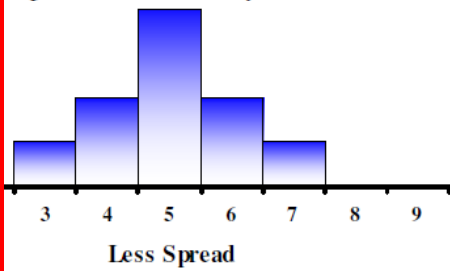
How to Compare Distributions

When you compare two or more data sets, focus on four features:

- **Center.** Graphically, the center of a distribution is the point where about half of the observations are on either side.
- **Spread.** The spread of a distribution refers to the variability of the data. If the observations cover a wide range, the spread is larger. If the observations are clustered around a single value, the spread is smaller.
- **Shape.** The shape of a distribution is described by symmetry, skewness, number of peaks, etc.
- **Unusual features.** Unusual features refer to gaps (areas of the distribution where there are no observations) and outliers.

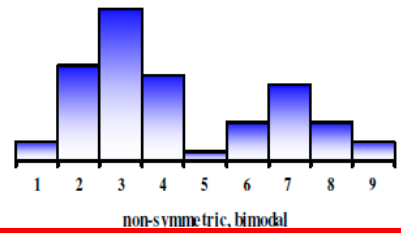
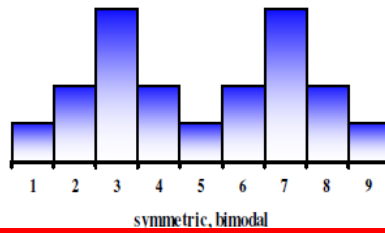
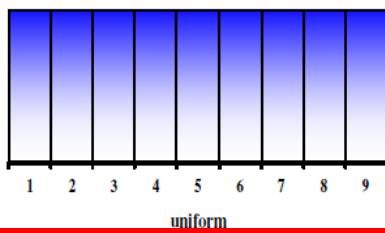
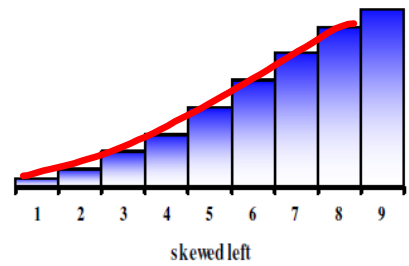
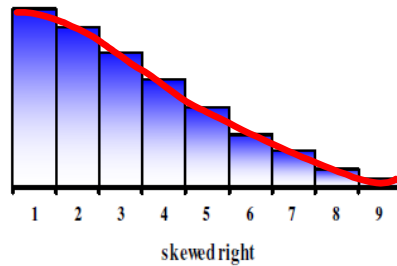
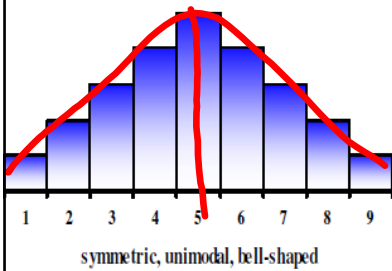
SPREAD

The spread of a distribution refers to the variability of the data. If the data cluster around a single central value, the spread is smaller. The further the observations fall from the center, the greater the spread or variability of the set.



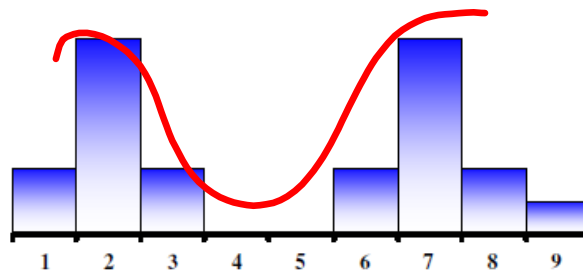
SHAPE

The shape of a distribution is described by symmetry, number of peaks, direction of skew, or uniformity

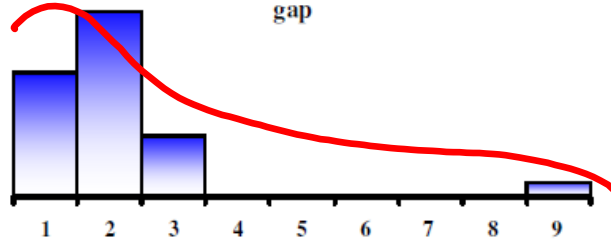


UNUSUAL FEATURES

Sometimes, statisticians refer to unusual features in a set of data. The two most common unusual features are gaps and outliers.



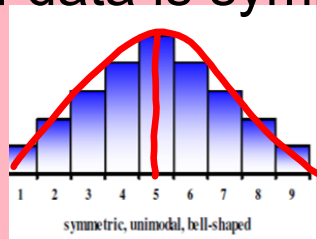
gap



outlier

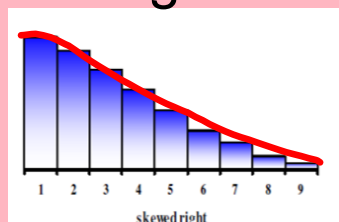
The best measure of central tendency is dependent on the skewness of the data

Use: mean if data is symmetrical



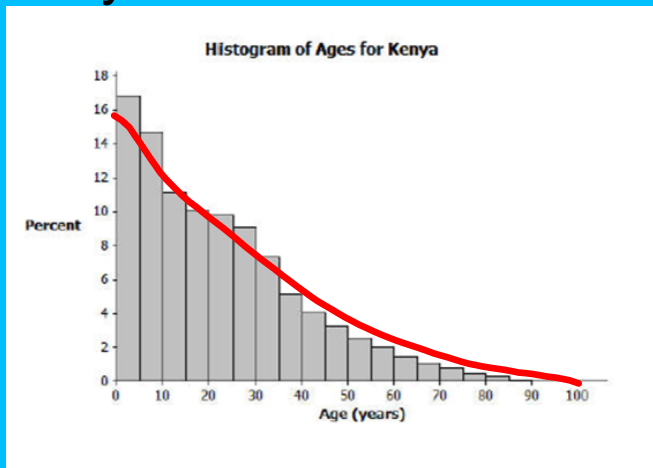
symmetric, unimodal, bell-shaped

median if data is right or left skewed



skewed right

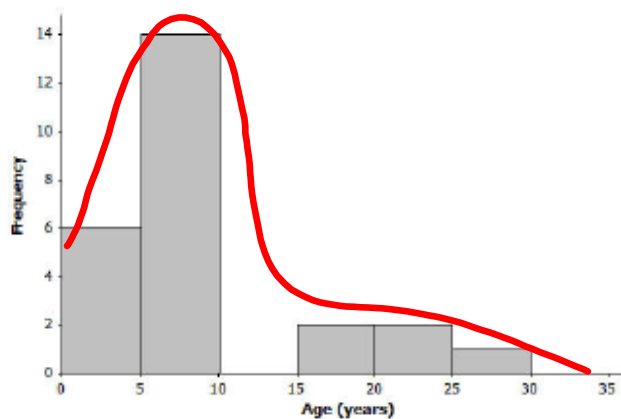
Which direction is the ages for Kenya skewed?
 Why do you think it skews that way?



Twenty-five people were attending an event. The ages of the people are indicated below:

3, 3, 4, 4, 4, 4, 5, 6, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 7, 16, 17, 22, 22, 25

a. Create a histogram of the ages using the provided axes.

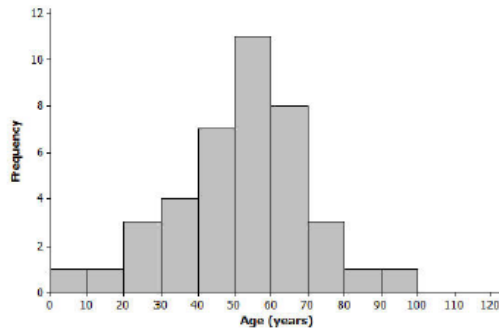


b. Would you describe your graph as symmetrical or skewed? Explain your choice.

A different forty people were also attending an event. The ages of the people are

6, 13, 24, 27, 28, 32, 32, 34, 38, 42, 42, 43, 48, 49, 49, 49, 51, 52, 52, 53,
53, 53, 54, 55, 56, 57, 57, 60, 61, 61, 62, 66, 66, 66, 68, 70, 72, 78, 83, 97

a. Create a histogram of the ages using the provided axes.



b. Would you describe your graph of ages as symmetrical or skewed? Explain your choice.

c. Identify a typical age of the forty people.

Why does the shape of the distribution of incomes for professional athletes tend to be skewed to the right?



Why does the shape of the distribution of test scores on a really easy test tend to be skewed to the left?



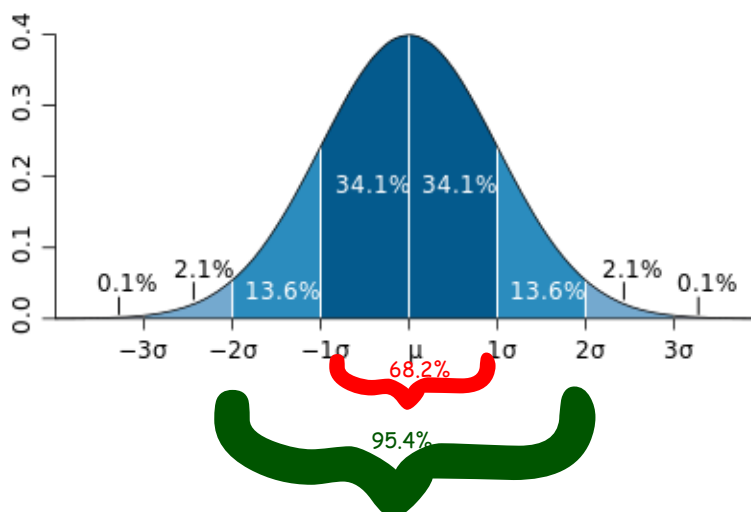
What is standard deviation?

σ

Standard deviation, represented by the Greek letter sigma shows how much variation or dispersion from the average exists.

A low standard deviation indicates that the data points tend to be very close to the mean and a high SD indicates that the data is spread out over a large range of values

Illustrating standard deviation on a normal distribution curve

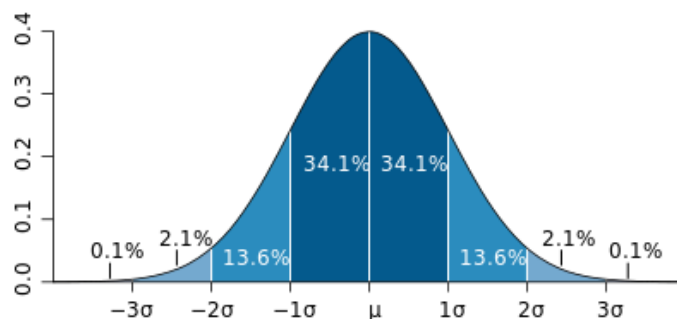


To find the standard deviation in Desmos

1. Enter list $L=[\#, \#, \#, \#]$
2. In next section type $stdev(L)$ or press *Functions*, scroll to Stat, type $stdev$

Find the mean, median, and standard deviation of the data set.
The data set below gives the waiting times (in minutes) of several people at a department of motor vehicles service center.

31, 27, 34, 22, 28, 33, 23, 26, 30, 23, 28, 14, 18, 14, 27



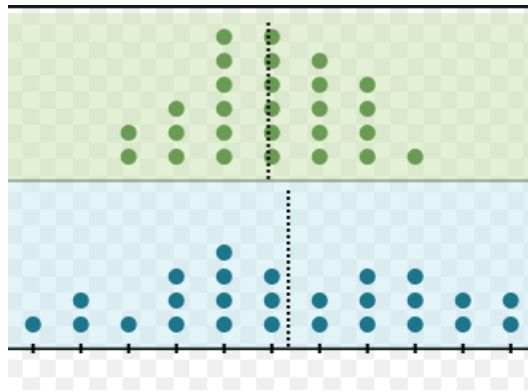
mean = 25.2

median = 27

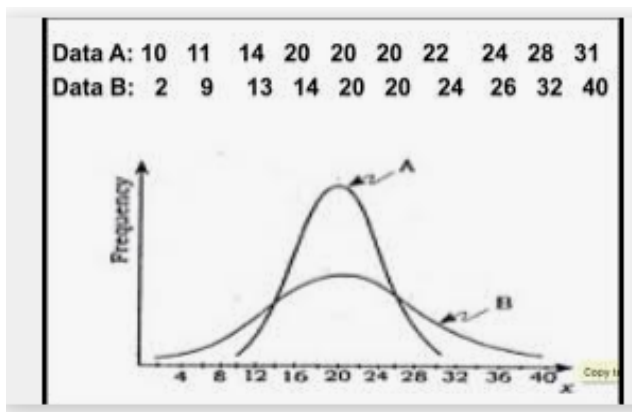
standard deviation = 6.2

What would happen if 100 was inputted into our data set?

Which data has the larger standard deviation?



Which data has the larger standard deviation?



provide notes handout

Canvas: Desmos Activity: Comparing
Temperatures - due Friday

