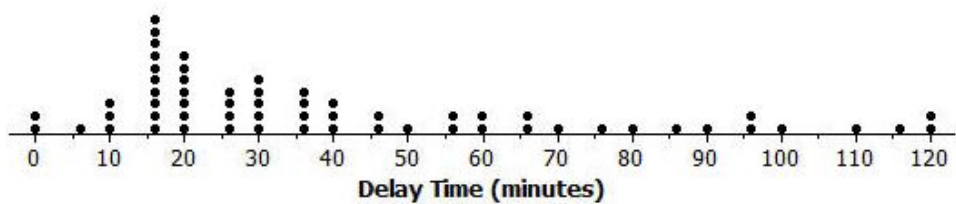


Looking at plots of data

Transportation officials collect data on flight delays (the number of minutes past the scheduled departure time that a flight takes off).

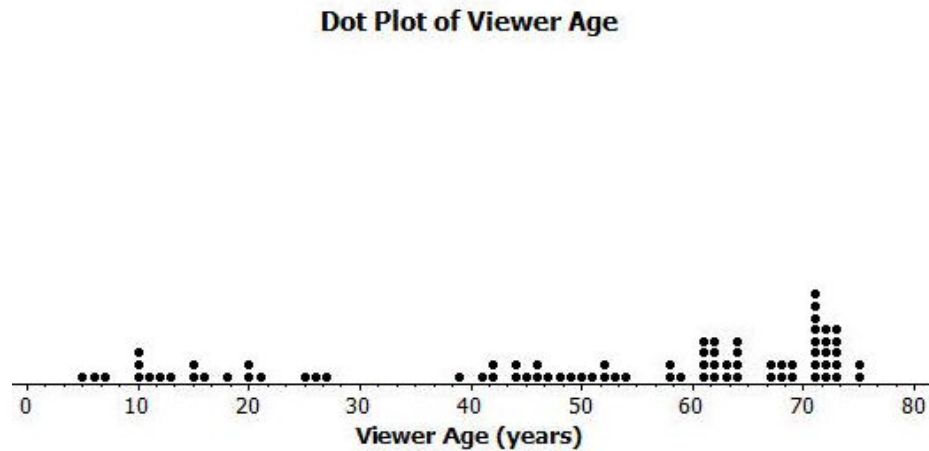
Consider the dot plot of the delay times for sixty BigAir flights during December 2012.

Dot Plot of December Delay Times



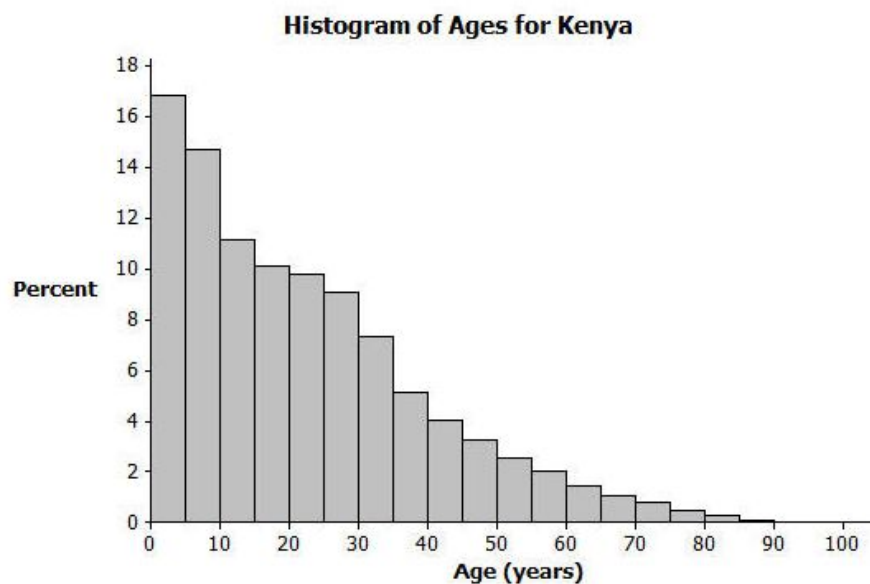
1. What do you think this graph is telling us about the flight delays for these sixty flights?
2. Can you think of a reason why the data presented by this graph provide important information? Who might be interested in this data distribution?
3. Based on your previous work with dot plots, would you describe this dot plot as representing a symmetric or a skewed data distribution? (Recall that a skewed data distribution is not mound shaped.) Explain your answer.

A random sample of eighty viewers of a television show was selected. The dot plot below shows the distribution of the ages (in years) of these eighty viewers.



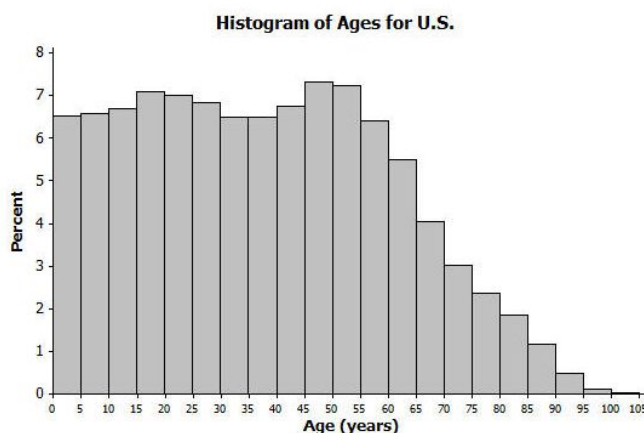
1. What do you think this graph is telling us about the ages of the eighty viewers in this sample?
2. Can you think of a reason why the data presented by this graph provide important information? Who might be interested in this data distribution?
3. Based on your previous work with dot plots, would you describe this dot plot as representing a symmetric or a skewed data distribution? Explain your answer.

The following histogram represents the age distribution of the population of Kenya in 2010.



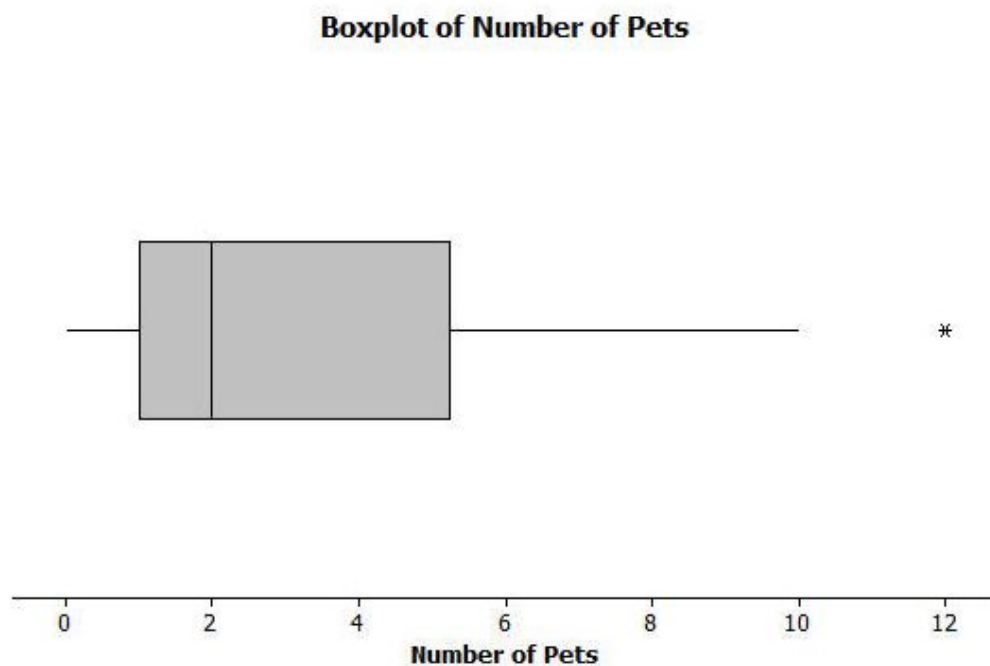
1. What do you think this graph is telling us about the population of Kenya?
2. Why might we want to study the data represented by this graph?
3. Would you describe this histogram as representing a symmetrical or a skewed distribution? Explain your answer.

The following histogram represents the age distribution of the population of the United States in 2010.



1. What do you think this graph is telling us about the population of the United States?
2. Why might we want to study the data represented by this graph?
3. Would you describe this histogram as representing a symmetrical or a skewed distribution? Explain your answer.

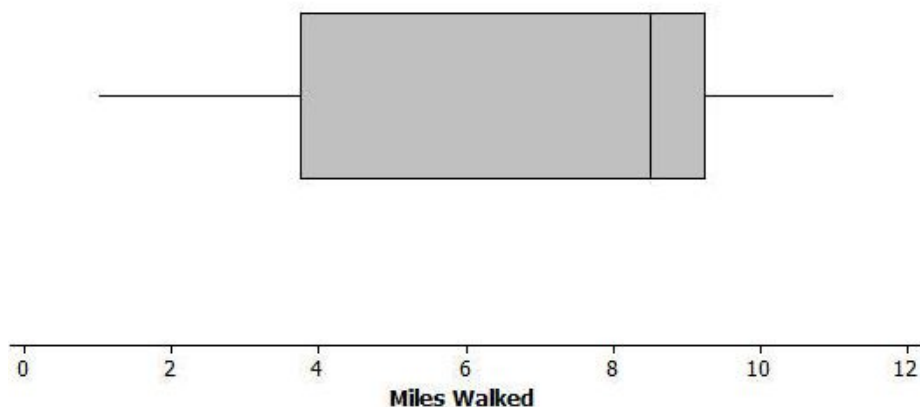
Thirty students from River City High School were asked how many pets they owned. The following box plot was prepared from their answers.



1. What does the box plot tell us about the number of pets owned by the thirty students at River City High School?
2. Why might understanding the data behind this graph be important?
3. Would you describe this box plot as representing a symmetrical or a skewed distribution? Explain your answer.

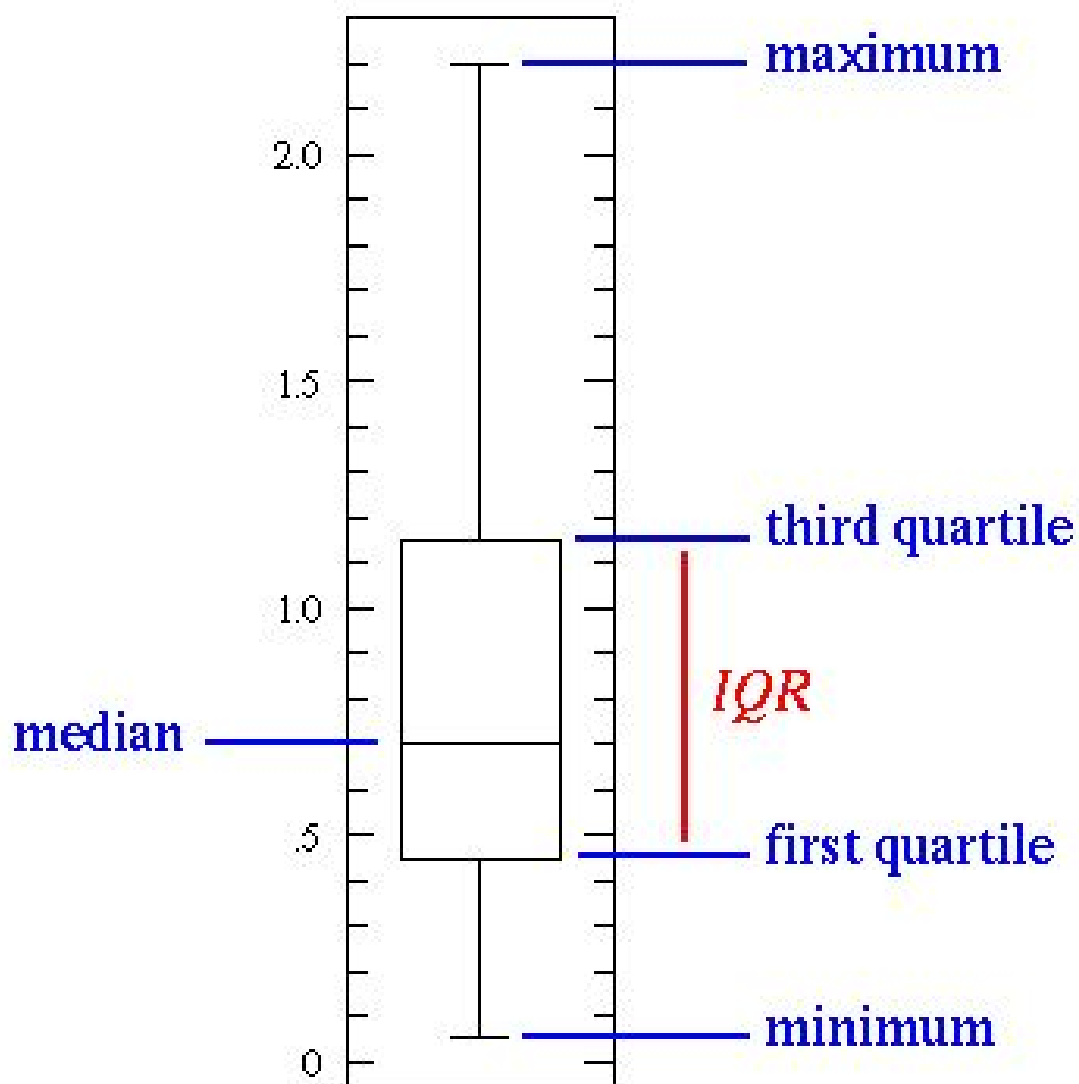
Twenty-two juniors from River City High School participated in a walkathon to raise money for the school band. The following box plot was constructed using the number of miles walked by each of the twenty-two juniors.

Boxplot of Miles Walked for Juniors



1. What do you think the box plot tells us about the number of miles walked by the twenty-two juniors?
2. Why might understanding the data behind this graph be important?
3. Would you describe this box plot as representing a symmetrical or a skewed distribution? Explain your answer.

How to read a box-plot (or box and whiskers plot)



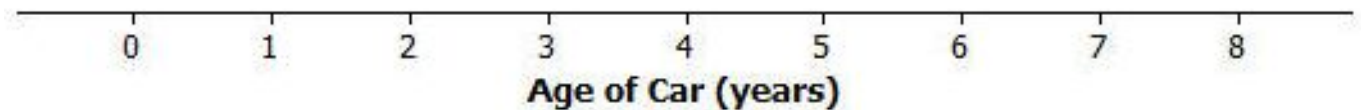
The M-words: Max, Min, Mean, Median and Mode

Car Ages

Twenty-five car owners were asked the age of their cars in years. The results are recorded below.

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

1. Make a dot plot of the data:



2. What are the smallest and largest values in the data set?

Min: _____

Max: _____

3. What is the mean / average of the data set? How is that computed?

Mean: _____

4. What is the median of the data set? How is that computed?

Median: _____

5. What is the mode of the data set? How is that computed?

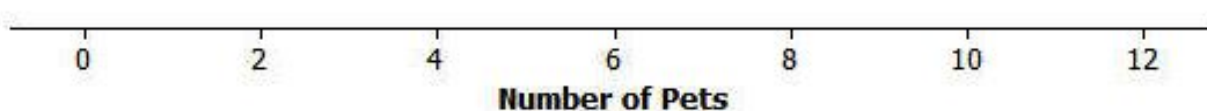
Mode: _____

Pet Ownership

Students from River City High School were randomly selected and asked, “How many pets do you currently own?” The results are recorded below.

0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 3, 4, 5, 5, 6, 6, 7, 8, 9, 10, 12

1. Make a dot plot of the data:



2. What are the smallest and largest values in the data set?

Min: _____

Max: _____

3. What is the mean / average of the data set? How is that computed?

Mean: _____

4. What is the median of the data set? How is that computed?

Median: _____

5. What is the mode of the data set? How is that computed?

Mode: _____

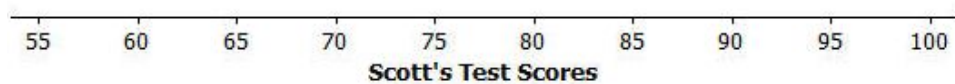
Think about:

1. How much do min and max tell you about the data?
2. How much do mean and median tell you about the data? Which one is more useful? Why are they sometimes close together and sometimes far apart?
3. How much does the mode tell you about the data.
4. Describe a situation in which mean, median, mode is the most important information that one may want about the data.

Try it yourself:

Consider another example of a data set. Mr. Jackson is a mathematics teacher. Students in his class are frequently given quizzes or exams. He indicated to his students that an exam is worth 4 quizzes when calculating an overall weighted average to determine their final grade. During one grading period, Scott got an 80% on one exam, a 90% on a second exam, a 60% on one quiz, and a 70% on another quiz.

How could we represent Scott's test scores? Consider the following number line.



1. What values are represented by the number line?
2. If one "•" symbol is used to represent a quiz score, how might you represent an exam score?
3. Represent Scott's exams and quizzes on this number line using "•" symbols.
4. Mr. Jackson indicated that students should set an 85% overall weighted average as a goal. Do you think Scott met that goal? Explain your answer.
5. Place an X on the number line at a position that you think locates the balance point of all of the "•" symbols. Determine the sum of the distances from the X to each "•" on the right side of the X.
6. Determine the sum of the distances from the X to each "•" on the left side of the X.
7. Do the total distances to the right of the X equal the total distances to the left of the X?