

Displaying Data: Dot Plots

There are multiple ways that we can display data. One way is by creating a **dot plot**.

A dot plot represents each _____ in the data set with a dot on a number line. It helps to determine the _____ of a value within that data set. Dot plots are often used for _____ sets of data.

Consider the following scenario.

Marian asked the students in her biology class to record the number of times during the month that each student sees a deer on the highway. Marian collected the results:

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

How many students recorded the number of deer sightings over the month?

What was the fewest number of deer sightings during the month?



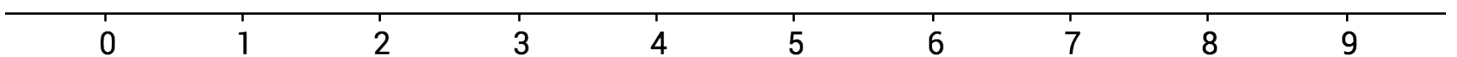
How many students saw that many deer?

What was the largest number deer sightings during the month?

How many students saw that many deer?

Let's make a dot plot to represent all of the values in our data set.

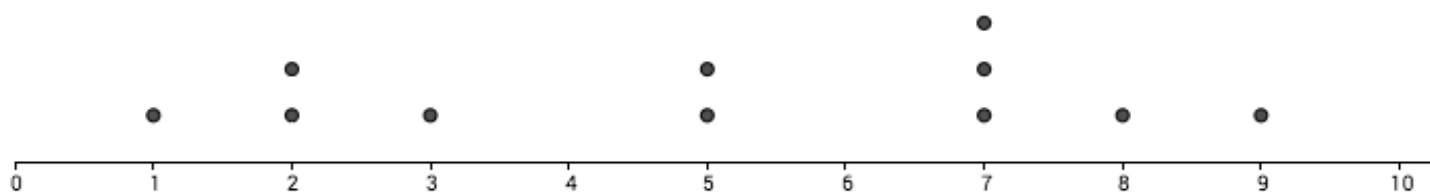
0, 1, 2, 2, 3, 4, 4, 4, 6, 7, 7



Let's Practice

Marty surveys the gaming club. He asks each club member how often he or she plays on their GameBro each day.

Marty made a dot plot based on his survey results.



Which of the following data sets matches Marty's dot plot?

- A. $\{1, 2, 3, 5, 7, 8, 9\}$
- B. $\{7, 8, 5, 1, 7, 5, 2, 7, 9, 2, 3\}$
- C. $\{1, 2, 1, 2, 3, 1, 1\}$
- D. 56



Display Data: Histogram

A **histogram** is a data display that shows the frequency of data over intervals.

It is often used to represent _____ sets of data.

The **frequency** of a data value is the rate of its occurrence.

An **interval** is a range of values. It is important that each interval is the _____ length.

The times, rounded to the nearest hour, that 15 students spent playing video games over one week were recorded as follows:

$\{0, 2, 2, 3, 4, 4, 5, 5, 6, 7, 8, 8, 10, 11, 13\}$

Let's construct a histogram to represent the data.

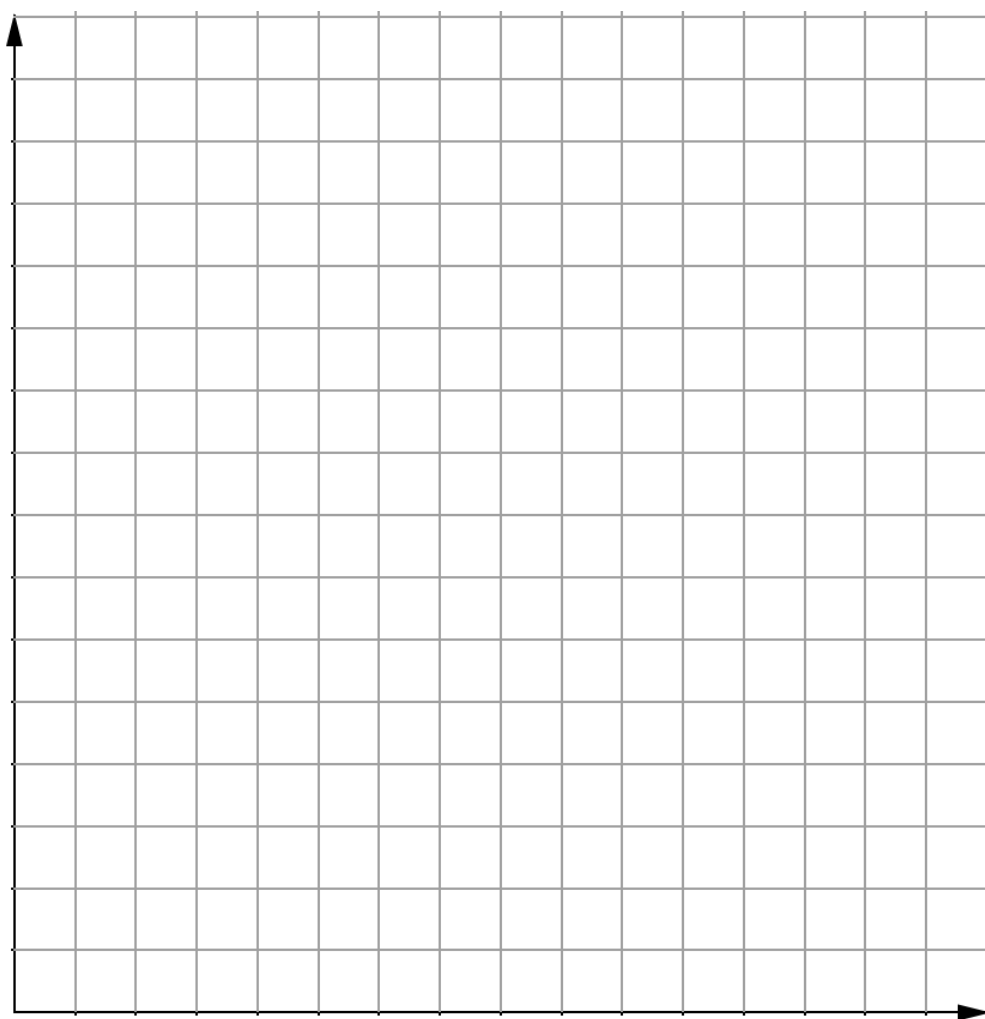
First, we need to decide what interval we will use.



Now that we have our interval, let's determine how many values fall into each interval.

Let's plot this frequency on the histogram below:

$\{0, 2, 2, 3, 4, 4, 5, 5, 6, 7, 8, 8, 10, 11, 13\}$

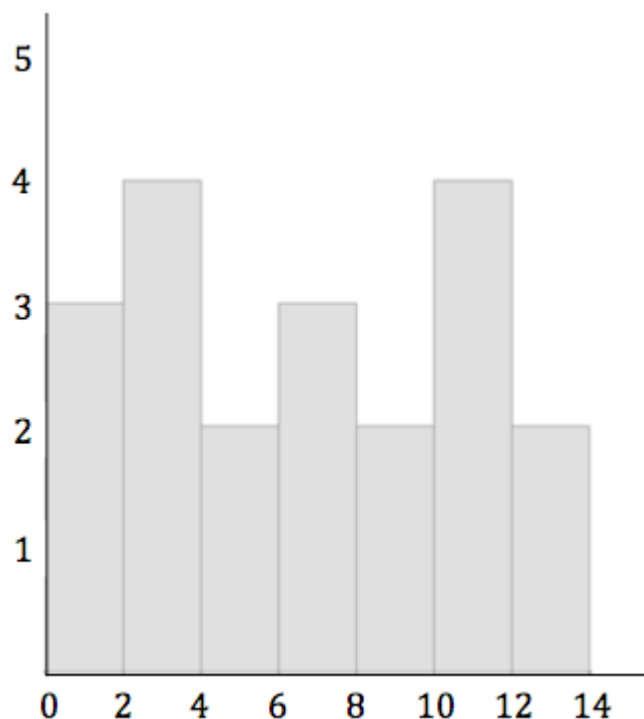




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Let's Practice

Carolina surveyed her French club to find out how many hours they spend studying per week. The data collected is represented on the histogram below.



Which of the follow data sets is represented by the histogram?

- A. $\{0, 0, 2, 2, 3, 3, 4, 5, 5, 6, 7, 8, 10, 10, 11, 12, 12\}$
- B. $\{0, 1, 1, 2, 3, 3, 3, 5, 5, 6, 7, 7, 8, 9, 10, 10, 10, 11, 12, 13\}$
- C. $\{1, 2, 3, 3, 4, 4, 4, 4, 8, 8, 9, 10, 10, 10, 11, 13, 13\}$
- D. $\{2, 2, 4, 5, 5, 7, 7, 7, 7, 8, 9, 10, 11, 12, 12, 12, 13\}$



Understanding and Calculating Mean

The following data set represents the number of posts each student made on Friendbook in one day.

Student	Number of Posts
James	12
Mariam	9
Sasha	15
Javon	21
Angelica	31

What is the total number of posts made by the students in one day?

How many students are in the data set?

What happens when we divide the total number of posts by the total number of students?

What does this number tell us?



This number is called the **mean**, or average, of the data set.

The mean is found by _____ the values of the data and _____ by the total number of data points in the set.

Let's Practice

Omar earned the following grades on the first five tests in his Pre-Algebra class: 82, 83, 72, 89, and 91.

What is Omar's average test grade in his Pre-Algebra class?



Understanding and Calculating Median

The Sandalwood Saints football team scored the following number of points during their 9 games in the season:

21, 9, 34, 17, 45, 35, 28, 42, 14

Which of the 9 scores is the middle value of the set?

How can we easily determine the middle value?

*This middle value is called the **median** of the data set.*

What if the Saints only played 8 games during the season with the following scores?

9, 17, 21, 28, 34, 35, 42, 45

What is the middle value now?



When a data set has an even number of values, we have to find the middle point between those two values. In order to that, we find the _____ of the two numbers.

What is the median?

Let's Practice

The following data set represents the Gators basketball team's scores. Find the **median** of the scores.

Game 1: 68

Game 2: 96

Game 3: 75

Game 4: 52

Game 5: 49

Game 6: 61

Game 7: 108

Game 8: 49

Game 9: 58

Game 10: 74

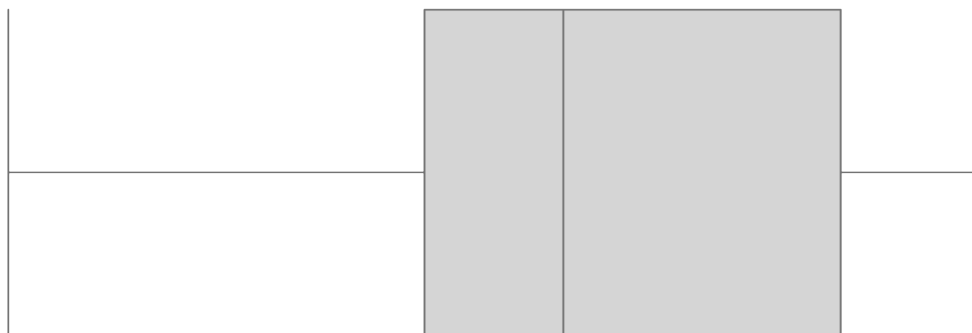


Displaying Data: Box Plots

A **box plot** is a way of depicting _____ important numbers when summarizing data.

The five important numbers are:

- Minimum: _____
- Lower Quartile: _____
- Median: _____
- Upper quartile: _____
 - A quartile is _____ of the data.



Consider the following data set:

$\{1, 2, 2, 5, 5, 6, 6, 7, 7, 8, 9\}$

How many values are in our data set?



What is the minimum value of the data set?

What is the maximum value of the data set?

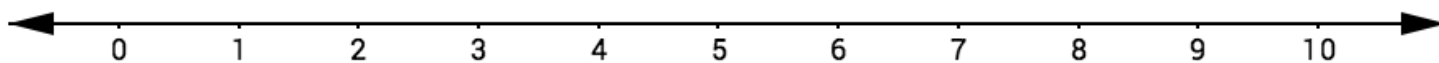
What is the median of the data set?

What is the lower quartile of the data set?

What is the upper quartile of the data set?

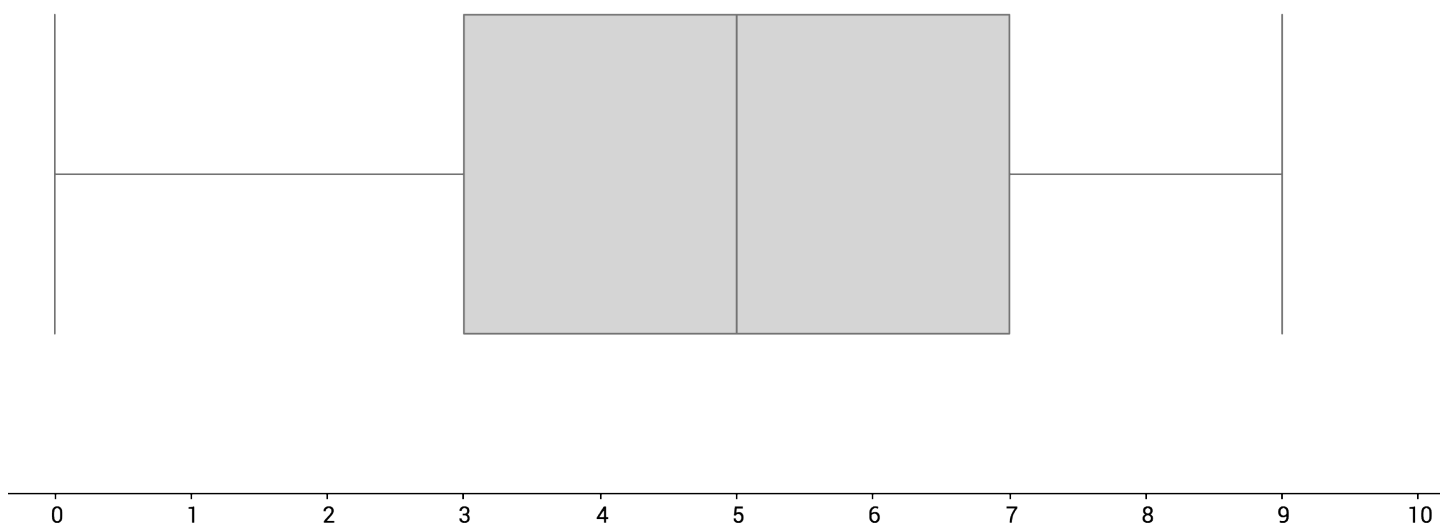
Now that we have the five-number summary, we can plot.





Let's Practice

Which of the following data sets does the box plot below model?



- A. $\{0, 2, 4, 4, 4, 7, 7, 5, 7, 9, 8\}$
- B. $\{0, 3, 4, 5, 3, 5, 7, 3, 7, 8, 9\}$
- C. $\{24\}$
- D. $\{0, 2, 2, 2, 5, 5, 5, 7, 7, 7, 8, 8, 8, 8, 10\}$

