



Math Virtual Learning

Algebra IIB

April 30th, 2020



Lesson: April 30th, 2020

Objective/Learning Target:

Students will identify what an outlier is and decide if numbers are outliers in data sets

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What are Q_1 , Q_2 , and Q_3 of the following list?

8, 10, 14, 14, 15, 17, 20, 21, 22, 25

$$Q_1 = 14 \quad Q_2 = 16 \quad Q_3 = 21$$

Lesson

Today you will focus specifically on the concept of an **outlier**. First, what is an outlier? Let's look at the definition. An **outlier** is a value that lies outside all the other values. Secondly, how do you decide if a number is an outlier. Watch this short [video](#) explaining how to decide outliers. For additional help there will be an example to follow.

Example

Determine if the data has any outliers.

2, 26, 26, 29, 33, 33, 34, 40, 41, 42, 62

Step 1: Find the quartiles of the list.

$$Q_1 = 26, Q_2 = 33, Q_3 = 41$$

Step 2: Find the Interquartile Range.

$$41 - 26 = 15$$

Step 3: Determine the highest and lowest numbers the outliers can be.

Lowest:

$$Q_1 - 1.5(\text{IQR})$$

$$26 - 1.5(15)$$

$$26 - 22.5$$

$$3.5$$

Highest:

$$Q_1 + 1.5(\text{IQR})$$

$$41 + 1.5(15)$$

$$41 + 22.5$$

$$63.5$$

Step 4: Compare the numbers on the list to see if any are below 3.5 or above 63.5

2 would be considered an outlier because it is lower than 3.5. That is the only outlier because there are no other numbers below 3.5 or above 63.5

Practice

Now you try. Here are [practice problems](#) you can try.

The answers are also available after the problems when you scroll down. Reminder, to put the lists in order from least to greatest at the start of the problem.

Additional Resources

Here is another [video](#) you can watch for more assist and examples.