



MATH NEWS



LAFAYETTE
PARISH SCHOOL SYSTEM

Grade 6, Module 3, Topic B

6th Grade Math

Module 3: Rational Numbers

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. In Module 3 of Eureka Math (Engage New York), students extend the number line (both horizontally and vertically) to include the opposites of whole numbers. The number line serves as a model to relate integers and other rational numbers to statements of order in real-world contexts.



Focus Area Topic B:

Order and Absolute Value

Words to Know:

Integers - The numbers ...-3, -2, -1, 0, 1, 2, 3... on the number line.

Positive Number - A number greater than zero.

Negative Number - A number less than zero.

Opposite - In a position on the other side, as the negative numbers are the opposite direction from zero as the positive numbers.

Rational Number - A fraction or the opposite of a fraction on the number line.

Absolute Value - The absolute value of a number is the distance between the number and zero on the number line. For example, $|3|=3$, $|-4|=4$, etc.

In Topic B, students focus on the ordering of rational numbers. They understand absolute value as a number's distance from zero on the number line and continue to find and position rational numbers on horizontal and vertical number lines.

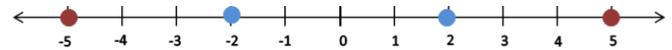
Focus Area Topic B:

Order and Absolute Value

Students begin the topic by graphing numbers and their opposites. They then discover the order of the numbers by looking at their place on the number line.

Example Problem and Solution:

Graph 2 and 5 and their opposites on a number line.



Where does 5 lie in relation to 2?

5 is three units to the right of 2.

Where does the opposite of 5 lie in relation to the opposite of 2?

-5 is three units to the left of -2.

Order the numbers from least to greatest.

-5, -2, 2, 5

Students interpret inequality statements about the positioning of rational numbers with respect to one another and recognize that if $a < b$, then $-a > -b$ because a number and its opposite are equal distances from zero.

Example Problem and Solution:

Write an inequality statement comparing the following numbers:

2, $\frac{1}{2}$, -1, 4, .25, -9

$-9 < -1 < .25 < \frac{1}{2} < 2 < 4$

Write an inequality statement comparing the following numbers:

$7\frac{1}{2}$, -8, 6.25, $-8\frac{1}{4}$, -7

$7\frac{1}{2} > 6.25 > -7 > -8 > -8\frac{1}{4}$



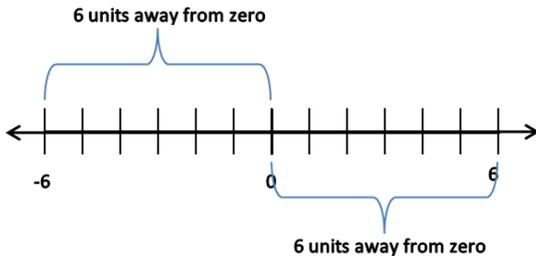
Focus Area Topic B:
Order and Absolute Value



Students understand **absolute value is the distance a number is from zero**; they know opposite numbers are the same distance from zero, and so they have the **same** absolute value.

Example Problem and Solution:

We read the following notation, $|6|$, the absolute value of 6. On the number line, count the number of units from 6 to 0. How many units is 6 from 0? How many units is -6 from 0?



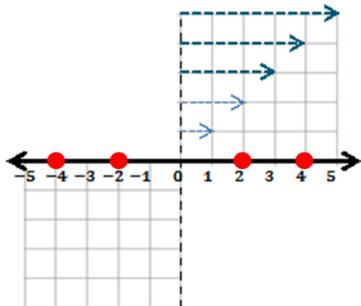
The number 6 is 6 units away from zero. Its absolute value is 6. Since -6 is also 6 units away from 0 its absolute value is also 6.

Students also learn about order and the relationship of their absolute value when given a certain set of numbers.

Example Problem and Solution:

What is the relationship between the absolute value and the order of the following integers?

-4, -2, 2, 4

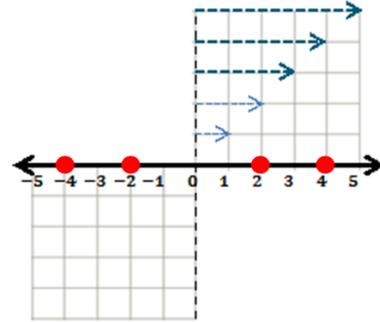


As you move from left to right, the integers increase in value.

Focus Area Topic B:
Order and Absolute Value

The absolute values show something a little different. Here's what happens with the absolute values:

$$|-4| = 4 \quad |-2| = 2 \quad |2| = 2 \quad |4| = 4$$



As you move to the **left of zero** (negative numbers), the value **of the integers decreases** however the **absolute value increases**.

As you move from **zero to the right** (positive numbers), the **value of the integers increases** and the **absolute value increases**.

Students use real-world situations to model negative and positive integers and rational numbers on both the vertical and horizontal number line in the context of situations such as sea-level, elevator positions, and thermometers.

Example Problem and Solution:

Represent each of the following elevations using a rational number. Then order the numbers from least to greatest.

125.5 feet below sea level -125.5

125.7 feet above sea level 125.7

254.4 feet above sea level 254.4

254.6 feet below sea level -254.6

$$-254.6 < -125.5 < 125.7 < 254.4$$

