



MATH NEWS



LAFAYETTE
PARISH SCHOOL SYSTEM

Grade 7, Module 2, Topic B

7th Grade Math

Module 2: 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. Module 2 of Eureka Math (Engage New York) builds on their understanding of rational numbers to add, subtract, multiply, and divide signed numbers. Previous work in computing the sums, differences, products, and quotients of fractions serves as a significant foundation as well.



Focus Area Topic B:

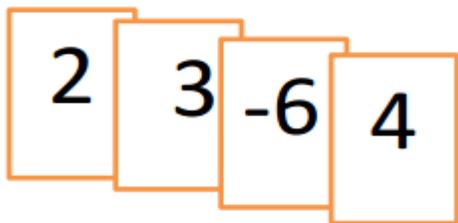
Multiplication and Division of Integers and Rational Numbers

Words to Know:

Multiplicative Identity- the multiplicative identity is 1.

Repeating Decimal- the decimal form of a rational number, for example, $\frac{1}{3} = 0.333\dots$

Terminating Decimal- a decimal is called terminating if its repeating digit is 0.



These are Integer Cards. What is the value of this hand?

Answer: 3

Explanation: $2 + 3 + 4 = 9$
 $9 + -6 = 3$

Focus Area Topic B:

Multiplication and Division of Integers and Rational Numbers

Students develop the rules for multiplying and dividing signed numbers. They use the properties of operations and their previous understanding of multiplication as repeated addition to represent the multiplication of a negative number as repeated subtraction. Students make analogies to the Integer Game to understand that the product of two negative numbers is a positive number.

Example Problem and Answer

Problem: Create a real-life example that can be modeled by the expression -2×4 and then state the product.

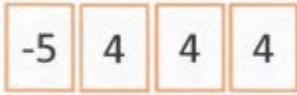
Answer: Tobi wants to lose two pounds each week for four weeks. Write an integer to represent Tobi's weight change after four weeks. Tobi's weight changes by -8 pounds after four weeks.



Focus Area Topic B:

Students practice and justify their understanding of multiplication of integers by using the Integer Game.

Example Problem and Solution:



If all of the 4's from the playing hand are discarded, how will the score be affected? Model this using a product in an equation.

Solution: The score decreases by four, three consecutive times, for a total decrease of 12 points. The equation is $3 \times -4 = -12$



Students use the rules for multiplication of signed numbers and give real-world examples.

Example Problem and Solution:

$$-6 \times (-3)$$

Solution: I removed six -3's from my hand in the Integer Game, and my score increased 18 points. (Removing negatives increases the score)



Students understand that the quotient is positive if the divisor and dividend have the same signs and negative if they have opposite signs.

Example Problem and Solution:

List examples of division problems that produce a quotient that is a negative number.

Solution:

$$\begin{aligned} -24 \div 4 &= -6 \\ -24 \div 6 &= -4 \\ 24 \div (-4) &= -6 \\ 24 \div (-6) &= -4 \end{aligned}$$

In all of these problems, the divisor and dividend have opposite signs, so the quotients are negative.



Students convert between positive decimals to fractions and fractions to decimals when the denominator is a product of only factors of 2 and/or 5.

Example Problem and Solution:

What is the value of the number 2.25? How can this number be written as a fraction or mixed number?

Solution: Two and twenty-five hundredths or $2 \frac{25}{100}$



Students understand that every rational number can be converted to a decimal.

Example Problem and Solution:

Use long division to find the decimal value of $\frac{3}{4}$

Solution:

$$\begin{array}{r} 0.75 \\ 4 \overline{) 3.00} \\ \underline{-28} \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

Divide the numerator of the fraction by the denominator.

Students recognize that the rules for multiplying and dividing integers apply to rational numbers.



Example Problem and Solution:

In one year, Melinda's parents spend \$2,640.90 on cable and internet service. If they spend the same amount each month, what is the resulting change in the family's income?

Solution: The average change to their income is -\$220.08

$$\begin{array}{r} 220.075 \\ 12 \overline{) 2640.900} \\ \underline{-24} \\ 24 \\ \underline{-24} \\ 009 \\ \underline{-96} \\ 84 \\ \underline{-84} \\ 60 \\ \underline{-60} \\ 0 \end{array}$$

Since there are 12 months in a year, divide by 12 to find the monthly change to their income.