Eureka Math Parent Guide

A GUIDE TO SUPPORT PARENTS AS THEY WORK WITH THEIR STUDENTS IN MATH.

GRADE FOCUS

Seventh grade mathematics is about (1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples.

- Module 1: Ratios and Proportional Relationships
- » **Module 2: Rational Numbers**
- Module 3: Expressions and Equations
- Module 4: Percent and Proportional Relationships
- Module 5: Statistics and Probability
- Module 6: Geometry

LET'S CHECK IT OUT!

MODULE 2 FOCUS

In this 23-lesson module, students build on their understanding of rational numbers to add, subtract, multiply, and divide negative numbers. Students are also introduced to the Integer Game. This game helps students build their understanding of integer operations, among other strategies such as vector addition on the number line.

MORE SPECIFICALLY, CHILDREN WILL LEARN HOW TO:

- Add and subtract rational numbers and represent addition and subtraction on a horizontal or vertical number line diagram.
- Multiply and divide rational numbers.
- Solve real-world and mathematical problems involving the four operations with rational numbers.
- Use properties of operations to generate equivalent expressions.
- Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

TOPIC OVERVIEW

Topics are the lessons within a module that help children master the skills above. Here are the lessons that will guide your child through Module 2:

- Topic A: Addition and Subtraction of Integers and Rational Numbers
- Topic B: Multiplication and Division of Integers and Rational Numbers
- Topic C: Applying Operations with Rational Numbers to Expressions and Equation

WORDS TO KNOW

- **Additive Identity**: The *additive identity* is 0 because adding zero in a sum does not affect the value of the sum, i.e. 1+0=1, 5+0=5, x+0=0, etc.
- **Additive Inverse**: The *additive inverse* of a real number is the opposite of that number on the real number line. For example, the opposite of −3 is 3. A number and its additive inverse have a sum of 0.
- **Break-Even Point**: The *break-even point* is the point at which there is neither a profit nor loss.
- **Distance Formula**: If p and q are rational numbers on a number line, then the distance between and q is |p − q|.
- **Loss**: A decrease in amount, as when the money earned is less than the money spent
- **Multiplicative Identity**: The *multiplicative identity* is 1 because multiplying 1 does not affect the value of any product, i.e. 1x1=1, 5x1=5, t x 1=t, etc.
- **Profit**: A gain, as in the positive amount represented by the difference between the money earned and spent.
- **Repeating Decimal**: The decimal form of a rational number, for example $1/3 = 0.\overline{3}$
- **Terminating Decimal**: A decimal is called terminating if its repeating digit is 0. *For example, 1/4 = 0.25000.*

SAMPLE PROBLEMS

SAMPLE 1

Review of Positive and Negative Numbers

Negative Numbers		Positive Numbers
• They are to the left of 0 on a number line and get smaller going to the left.	**Both are on a number line.**	• They are to the right of on a number line and get larger going to the right.
• They can mean a loss, drop, decrease, or below sea level.		• They can mean a gain, increase, or above sea level.
• They look like –7, –8.		• They don't have a sign.
• They are opposites of positive numbers.		• They are opposites of negative numbers.

Sprinting Towards Fluency!

Sprints help develop fluency, build excitement towards mathematics, and encourage students to do their personal best! They are not necessarily a competition among classmates, but a quest to improve upon a student's previous time, ultimately helping them achieve the desired fluency when they are working with numbers as well as provide a feeling of achievement when their second sprint shows improvement.

During the Sprint activity below, your role as the parent will be the same as the role of the teacher when the class is completing this activity. You will keep track of the time as well as be an exciting and encouraging coach for your child. You will give your child the following: a copy of Sprint A and Sprint B. You can make a copy of this newsletter or use the original and fold the newsletter in half so your child only sees one Sprint at a time. You can use a stopwatch to record the time. For these modified sprints, please give your child 15 seconds to complete the 11 problems. The answers for both Sprints are provided at the bottom of the newsletter.

SAMPLE 2

Below is an example of how to use a number line model to represent an expression.

–6 + 4

Start at 0. Move 6 units to the left to represent –6.
Move 4 units to the right to represesnt 4. Your final value is –2.

SAMPLE 3

The Sprints! Directions: Determine the difference of the integers.

1.	4 – 2		1.	3 – 2	
2.	4 – 3		2.	3 – 3	
3.	4 – 4		3.	3 – 4	
4.	4 – (– 1)		4.	3 – (– 1)	
5.	4 – (– 2)		5.	3 – (– 2)	
6.	4 – (– 3)		6.	3 – (– 3)	
7.	(– 6) – 5		7.	(– 8) – 5	
8.	(– 6) – 7		8.	(– 8) – 7	
9.	(– 6) – 9		9.	(– 8) – 9	
10.	(– 3) – (– 2)		10.	(– 5) – (– 3)	
11.	(– 3) – (– 3)		11.	(– 3) – (– 5)	

HOW YOU CAN HELP AT HOME

- Ask your child what they learned in school today and ask them to show you an example.
- In this module, your child learned how to play the Integer Game. Ask them to find the missing value of the card below if the total score equals 0. Have them explain how they determined the missing value.