

## KEY CONCEPT OVERVIEW

This week, our class begins Module 2. In Topic A, students are introduced to the Integer Game, in which they use a number line to visualize the addition and subtraction of **integers** and other **rational numbers**. The goal of the Integer Game is for students to become more efficient at adding and subtracting rational numbers, which the class will be doing throughout this topic.

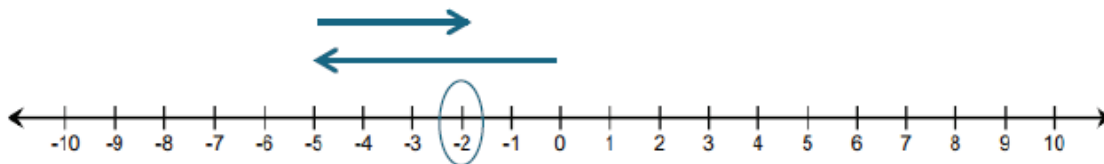
You can expect to see homework that asks your child to do the following:

- Use the Integer Game to discuss **additive inverses** (for example, 5 and  $-5$ ;  $\frac{1}{4}$  and  $-\frac{1}{4}$ ), write expressions, and explain how to add and subtract with integers.
- Use vectors on a number line (see Sample Problems) to model expressions.
- Evaluate addition and subtraction expressions involving integers and other rational numbers.
- Write and evaluate expressions that involve operations (addition, subtraction, multiplication, and division) and **absolute values**.

## SAMPLE PROBLEMS (From Lessons 5 and 9)

- a. Create a horizontal number line model to represent the following expression. What is the sum?

$-5 + 3$      **The sum is  $-2$ .**



- b. Using the rule of subtraction, rewrite the following subtraction sentence as an addition sentence and solve.

$8 - 2$       **$8 + (-2) = 6$**

- c. Evaluate the expression.

$$\begin{aligned}
 & 3\frac{1}{6} + 20.3 - \left(-5\frac{5}{6}\right) \\
 & 3\frac{1}{6} + 20.3 + 5\frac{5}{6} \\
 & 3\frac{1}{6} + 5\frac{5}{6} + 20.3 \\
 & 8\frac{6}{6} + 20.3 \\
 & 9 + 20.3 \\
 & 29.3
 \end{aligned}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

## HOW YOU CAN HELP AT HOME

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You can help at home in many ways. Here are just a few tips to help you get started:

- Have your child create a number line consisting of integers. State a fractional value (e.g.,  $\frac{1}{4}$  or  $-\frac{1}{6}$ ) or decimal value (e.g., 5.3 or  $-7.2$ ) and ask your child to place it correctly on the number line.
- Play “Integer War.” Use a standard deck of cards, assigning one color to represent negative values and the other color to represent positive values. (Face cards represent 10 or  $-10$ .) Shuffle the deck and divide the cards evenly between you and your child. Each player flips over two cards at a time. The player who has the larger sum wins that turn and collects both her own and the other player’s cards. Continue to play until one player wins (by collecting all the cards). Later in the topic, you can play the same game, but instead of adding each pair of cards, you can subtract black cards from red cards (or vice versa) to determine who has the larger difference.
- In preparation for Topic B, practice basic multiplication and division facts with your child. There are many math practice games online. Ask your teacher for links.

## TERMS

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**Absolute value:** The distance between a number and zero on the number line (e.g.,  $|3| = 3$ ,  $|-4| = 4$ ).

**Additive identity:** The number zero because you can add zero to any number without changing its identity:  $a + 0 = a$ .

**Additive inverse:** The number you add to another number so the sum is zero. For example,  $-a$  is the additive inverse of  $a$  because  $a + (-a) = 0$ .

**Associative property:** The grouping in an addition or multiplication problem may change, but the sum or product will remain the same.

**Commutative property:** The order of an addition or multiplication problem may change, but the sum or product will remain the same.

**Integer:** A positive or negative whole number. The set of integers is:  $\dots -3, -2, -1, 0, 1, 2, 3 \dots$

**Multiplicative identity:** The number one because you can multiply any number by one without changing its identity:  $a \cdot 1 = a$ .

**Rational number:** A number that can be written as a ratio or fraction. Rational numbers include positive and negative whole numbers (e.g., 4 because it can be written as  $\frac{4}{1}$ ), the number zero, fractions, and terminating (ending) and repeating decimals.

## MODELS

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### Integer Cards

1	2	3	4	-1	-2	-3	-4	
5	6	7	8	-5	-6	-7	-8	
9	10	11	12	-9	-10	-11	-12	0
								0