# TOPIC 2

Integers and Rational Numbers

In this topic, students extend what they know about whole numbers to work with integers and absolute value. They solve problems with integers and by using absolute value.

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CONNECT THE MATH

An understanding of negative numbers is important for managing finances. Credit card statements, mortgages, and car payments all use negative numbers to represent debt. A negative bank balance is an indication that there were more withdrawals than deposits.

Use play money to model a budget with your student, including both income and expenses. Discuss which values should be represented by positive or negative values.

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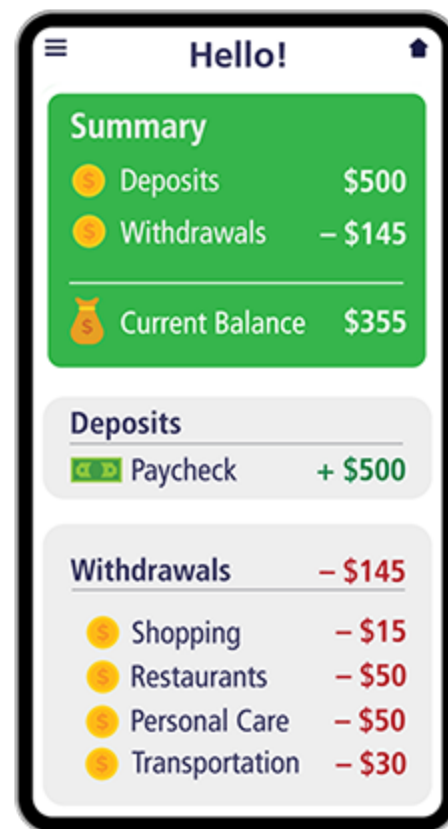
LESSON 2-1
Understand Integers

Integers are the counting numbers, their opposites, and 0. Integers can be compared, ordered, and used to describe real-world contexts.

LESSON OBJECTIVES

- Identify opposites of integers.
- Compare and order integers.
- Use integers to represent real-world quantities and explain the meaning of 0 in each context.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:
- [How Do You Represent Real-World Situations Using Integers?](#)
- [How Do You Compare Integers Using a Number Line?](#)

Review Key Vocabulary

Review key vocabulary from this lesson in your student's glossary:
- [integers](#)
- [opposites](#)

You can use these search terms and phrases to help your student find additional help online:
- define integers and opposites

- compare and order integers
- integers in the real world

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LESSON 2-2

Represent Rational Numbers on the Number Line

Each rational number can be associated with a unique point on the number line. A number to the right of another on the number line is the greater number.

LESSON OBJECTIVES

- Define rational numbers.
- Plot, order, and compare rational numbers using a number line.
- Use rational numbers in real-world situations.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:
- What's a Rational Number?
- How Do You Order Fractions and Decimals from Greatest to Least?

Review Key Vocabulary

Review key vocabulary from this lesson in your student's glossary:
- rational numbers

You can use these search terms and phrases to help your student find additional help online:

- plot negative rational numbers on the number line
- compare and order negative rational numbers

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LESSON 2-3

Absolute Values of Rational Numbers

The absolute value of a number can be described as the number's distance from 0 on the number line. Absolute value can be interpreted as the magnitude of a positive or negative quantity in a real-world situation.

LESSON OBJECTIVES

- Extend understanding of numbers to include absolute value.
- Interpret the meaning of absolute values in real-world situations.
- Distinguish comparisons of absolute value from statements about order.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:
- What Does Absolute Value Mean?
- How Do You Find the Absolute Value of Positive and Negative Numbers?

Review Key Vocabulary

Review key vocabulary from this lesson in your student's glossary:
- absolute value

You can use these search terms and phrases to help your student find additional help

online:

- absolute value of a number
- absolute value in the real world
- comparing absolute values

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LESSON 2-4

Represent Rational Numbers on the Coordinate Plane

A coordinate plane is formed by a horizontal number line, the *x*-axis, and a vertical number line, the *y*-axis, that intersect at a point called the *origin*. An ordered pair (x, y) locates a point on the coordinate plane.

LESSON OBJECTIVES

- Identify and graph points with rational coordinates on the coordinate plane.
- Reflect points with rational coordinates across both axes.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:
- How Do You Graph Ordered Pairs in Each Quadrant?
- How Do You Identify Points on a Graph?

Review Key Vocabulary

Review key vocabulary from this lesson in your student's glossary:
- coordinate plane
- ordered pair

- [origin](#)
- [quadrant](#)
- [x-axis](#)
- [y-axis](#)

You can use these search terms and phrases to help your student find additional help online:

- graphing points with rational coordinates
- locating points on the coordinate plane
- reflecting a point over an axis

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LESSON 2-5

Find Distances on the Coordinate Plane

The distance between two points on the coordinate plane with the same first coordinate or the same second coordinate can be found by adding or subtracting the absolute values of the coordinates that differ.

LESSON OBJECTIVES

- Use absolute value to find the distance between two points that lie on the same horizontal or vertical line on the coordinate plane.
- Solve real-world and mathematical problems involving distances on the coordinate plane.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:

- [How Can You Find Horizontal and Vertical Distance in the Coordinate Plane?](#)

You can use these search terms and phrases to help your student find additional help online:

- finding distances in the coordinate plane
- using absolute value to find distances between points

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LESSON 2-6

Represent Polygons on the Coordinate Plane

The coordinates of the vertices of a polygon on the coordinate plane can be used to find the lengths of the sides of the polygon and its perimeter.

LESSON OBJECTIVES

- Find side lengths of polygons on the coordinate plane.
- Find the perimeter of polygons on the coordinate plane.

HOW CAN YOU HELP WITH HOMEWORK

Review Lesson Content

Watch and share these video tutorials with your student:

- [How Do You Find the Perimeter of a Rectangle in the Coordinate Plane?](#)
- [How Do You Find the Perimeter of a Shape?](#)
- [How Can You Find Horizontal and Vertical Distance in the Coordinate Plane?](#)

You can use these search terms and phrases to help your student find additional help online:

- finding distances in the coordinate plane
- finding the perimeter of a rectangle in the coordinate plane