

Chapter 4 Lines and Linear Equations

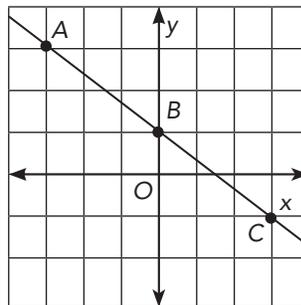
Dear Family,

In this chapter, your student will learn about linear equations. Some of the skills your student will practice are:

- finding the slope and y -intercept of a line
- writing an equation for a line and graphing it, given information about the line
- interpreting the slope and y -intercept of a line in a real-world context
- comparing linear relationships represented in different ways

Activity

- Finding the slope of a line is an important skill that students will use in many different math classes. You can help your student understand this skill with this activity.
- On graph paper, sketch the graph of a line that contains at least three easily-identified points, such as the one shown. Write the coordinates of three points on the graph.
- Choose any two of the points and use their coordinates to find the slope of the line.
- Choose two different points and use their coordinates to find the slope of the line.
- Compare the slopes that you found. If they are not the same, look for any errors and correct them. If they are the same, discuss with your student why the slope of the line is the same no matter which two points are used in the formula.



Vocabulary to Practice

If two points on a line are (x_1, y_1) and (x_2, y_2) , then the **slope** of the line is $\frac{y_2 - y_1}{x_2 - x_1}$.

The vertical change between the two points, $y_2 - y_1$, is called the **rise** of the line. The horizontal change, $x_2 - x_1$, is called the **run**.

The **y -intercept** of a line is the y -coordinate of the point where the line crosses the y -axis.

The **x -intercept** of a line is the x -coordinate of the point where the line crosses the x -axis.

If the relationship between two variables x and y can be represented by the equation $y = mx + b$, there is a **linear relationship** between the variables.



Online Resources

For additional Parent Resources my.hrw.com