

Relationships Between Two Variables

Family Letter

Dear Family,

In this module, *Relationships Between Two Variables*, students draw on their knowledge of tables, equations, and the coordinate plane to develop understanding of relationships between two variables. Having a solid understanding of these concepts will prepare students for their future as they encounter situations in their everyday life where a relationship exists between two variables, and they will be better prepared to study more advanced mathematical concepts in later courses.

What Did Students Learn Previously?

In earlier lessons, students learned to solve one-step equations involving each of the four operations, with positive rational numbers. They also graphed in all four quadrants of the coordinate plane.

For example, to solve for x in the equation $x - 3.5 = 8.75$, use the inverse operation of addition. Add 3.5 to each side of the equation to obtain $x = 12.25$.

What Will Students Learn in This Module?

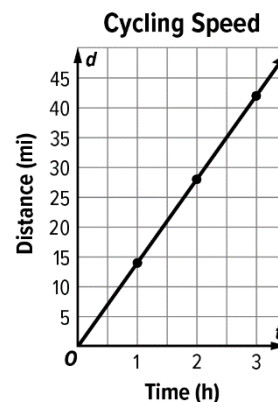
Relationships Between Two Variables

- Students will understand the difference between **independent** and **dependent variables**. For example, suppose Jaeda earns \$5 per hour for babysitting. The total amount she earns a is equal to 5 times the hours h that she babysits. The independent variable is hours, and the dependent variable is the total amount.
- Students will understand how to find **dependent** and **independent variable** values in a table, by means of an input value, a rule, and an output value.

Words	Equation
<i>A cyclist traveled at a constant speed of 14 miles per hour for several hours.</i>	$d = 14t$
Table	Graph

- Students will understand how to identify and use **dependent** and **independent variable** values to write one- and two-step equations and create tables and graphs. Looking for a pattern in a table, determining a rule to write an equation, and determining and graphing ordered pairs are all possible steps used in the processes of representing relationships.

Time (h), t	Distance (mi), d
1	14
2	28
3	42



What Vocabulary Terms Will Students Use?

Term	Definition
dependent variable	The variable in a relation with a value that depends on the value of the independent variable.
independent variable	The variable in a relationship with a value that is subject to choice.

How You Can Provide Support

- Support your child's understanding of relationships between two variables by asking them to explain how rational numbers are used in everyday life.
 - Identifying dependent and independent variables:* Give your child different real-world scenarios and ask them to identify the dependent and independent variables, such as *earning \$20 per hour for mowing lawns*, or *equally sharing 15 books*.
 - Writing equations:* Given the cost of carpet per square foot and the flat installation fee, have your child determine the total cost to carpet x square feet in a bedroom. Have them write an equation to represent the scenario for any given number of square feet of carpet needed. Then ask them how this equation would change if a different cost per square foot was used.
 - Multiple representations:* Look for examples of situations that could be represented with an equation, a table, or a graph. Have your child create and/or explain the representations. Examples could be from advertisements, such as *earn \$10 an hour*, or *costs \$1.19 per pound*.
- Encourage your child to have a positive, growth-oriented attitude towards mathematics and their learning.
 - Encourage them to ask questions – both at home and in class. Sometimes, an answer to a question will generate more questions. That's how you know they are learning!
 - Encourage your child to embrace challenges and remind them that every challenge is an opportunity to learn something new.
 - Celebrate successes – both small and large.
- Contact me to arrange a time to discuss the specifics of your child's performance and how we can work together to help them succeed in this module.

Sincerely,

(Teacher's Name)

(Email/Phone)