Lesson 32: Multi-Step Problems in the Real World

Classwork

Opening Exercise

Xin is buying beverages for a party that come in packs of 8. Let p be the number of packages Xin buys and t be the total number of beverages. The equation $t = 8p$ can be used to calculate the total number of beverages when the number of packages is known. Determine the independent and dependent variable in this scenario. Then, make a table using whole number values of p less than 6.
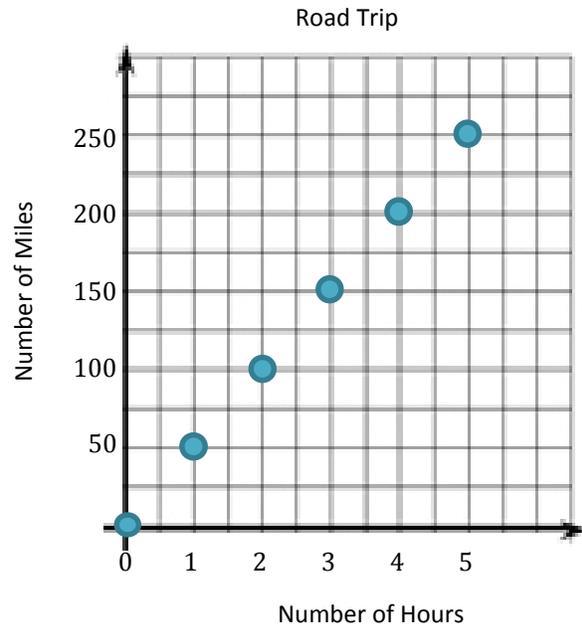
Number of Packages (p)	Total Number of Beverages ($t = 8p$)
0	
1	
2	
3	
4	
5	

Example 1

Make a graph for the table in the Opening Exercise.

Example 2

Use the graph to determine which variable is the independent variable and which is the dependent variable. Then, state the relationship between the quantities represented by the variables.

Road Trip

Exercises

1. Each week Quentin earns $30. If he saves this money, create a graph that shows the total amount of money Quentin has saved from week 1 through week 8. Write an equation that represents the relationship between the number of weeks that Quentin has saved his money, w, and the total amount of money in dollars that he has saved, s. Then, name the independent and dependent variables. Write a sentence that shows this relationship.

2. Zoe is collecting books to donate. She started with 3 books and collects two more each week. She is using the equation $b = 2w + 3$, where b is the total number of books collected and w is the number of weeks she has been collecting books. Name the independent and dependent variables. Then, create a graph to represent how many books Zoe has collected when w is 5 or less.

3. Eliana plans to visit the fair. She must pay $5 to enter the fair grounds and an additional $3 per ride. Write an equation to show the relationship between r, the number of rides, and t, the total cost. State which variable is dependent and which is independent. Then, create a graph that models the equation.