

Extend 6-6

Math Lab Inverse Proportionality

MAIN IDEA

Graph inverse variations.

New Vocabulary

inverse proportion

Jackie walks at an average rate of 4 miles per hour. This situation can be represented by the equation $d = 4t$, where d is the distance in miles, and t is the time in hours. The number of miles is proportional to the number of hours because the ratios are equal.

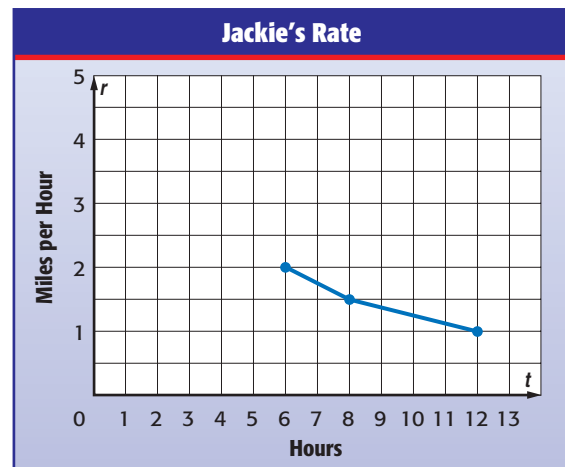
Let's vary the situation a little. Suppose Jackie wants to walk 12 miles each day, at varying speeds. How long will it take her to walk 12 miles? The answer depends on how fast she walks.

ACTIVITY

STEP 1 Copy and complete the table for the equation $12 = rt$.

t (hours)	12	8	6	■	■	■	■
r (miles per hour)	1	1.5	2	2.5	3	3.5	4

STEP 2 Copy and complete the graph of the ordered pairs from Step 1. Connect the line with a smooth curve. The first three points are done for you.



ANALYZE THE RESULTS

1. Is the time proportional to the rate? Explain why or why not.
2. When the product of two variables is a constant, the relationship forms an **inverse proportion**. Which situation is an inverse proportion: Jackie walking at 4 miles per hour or walking 12 miles at varying rates? Identify the constants in each situation.
3. Mr. Anwar agrees to pay Rob a flat fee of \$240 to do some yard work. Mr. Sloan agrees to pay Rob's brother \$10 per hour to do some yard work. Make a table of ordered pairs and a graph for each situation. Then decide whether each relationship is a proportion or an inverse proportion.