The Graph Story

Goals

- Construct a table of values from data presented in a line graph.
- Use symbols to write a function that relates time and distance.
- Interpret graphs of linear relationships that do and do not include the origin.

Questions to Ask

1. How far from home was Mr. Clark when he started his business trip? (5 miles) What are the coordinates of the point that shows he started 5 miles from home? ((0, 5))
2. After one hour, how far from home was Mr. Clark? (25 miles) What are the coordinates of the point that shows the distance from home after one hour? ((1, 25))
3. How far did Mr. Clark travel in the first hour? (20 miles) How do you know? (He is 25 − 5, or 20 miles farther from home at the end of the first hour than at the beginning of that hour.)
4. How far did Mr. Clark travel in the second hour? (20 miles) How do you know? (He is 45 − 25, or 20 miles farther from home at the end of the second hour than at the beginning of that hour.)
5. Does Mr. Clark travel the same distance each hour? (Yes) How do you know? (The graph is a straight line.)
6. How many miles would Mr. Clark travel in 5 hours? (100 miles) How far from home would he be after 5 hours? (105 miles)

f.y.i.

Before beginning this set of problems, review the naming of coordinates of points on the graph.

Solutions

1.

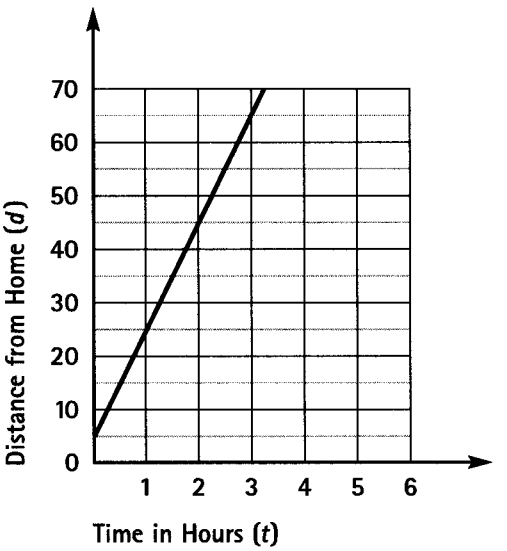
Time in Hours (t)	Distance from Home (d)
0	5
1	25
2	45
3	65
4	85
5	105

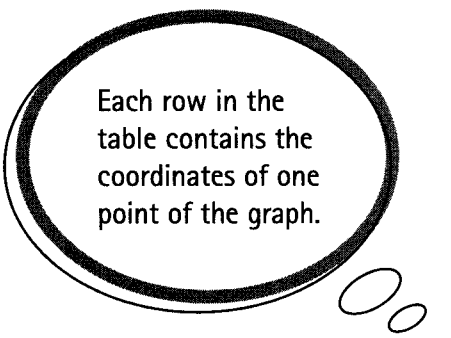
2. $d = 5 + 20t$ or $d = 20t + 5$
3. 20 miles per hour

"My students noticed that the slope of the line was always the same as the rate of speed. They also noticed that the constant in the equation was the same as the value of d when the value of t was zero. This made it easier for them to complete the table and write the equation."

The Graph Story 1

Mr. Clark started 5 miles south of his home on a business trip. He traveled south at a steady rate. The graph shows the distance he traveled in miles and the number of hours he traveled.





1. Use the graph to complete the table.

Time in Hours (t)	Distance from Home (d)
0	
1	
2	
3	
4	
5	

2. Write a function to relate the number of hours traveled to the number of miles from home. $d =$ _____

3. What was Mr. Clark's rate or average speed for the trip?

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