Rate Word Problems

1. Joseph walks at a constant speed. He walked to a store that is one-half mile away in 6 minutes. How many miles, m, can he walk in t minutes?

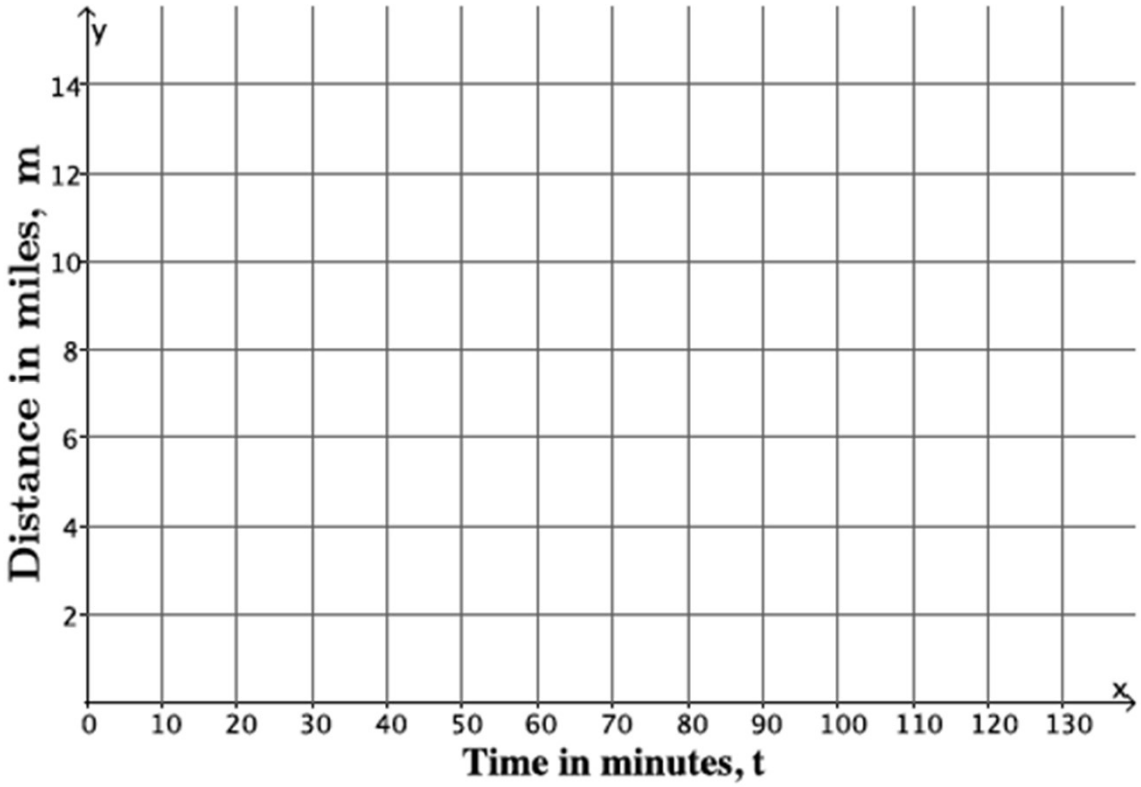
a) Write the linear equation in two variables that represents the number of miles Joseph can walk in any given time interval, t.

b) Complete the table below. Use a calculator, and round answers to the tenths place.

t (time in minutes)	Linear Equation:	m (distance in miles)
0		
30		
60		
90		
120		

Rate Word Problems

c) Graph the data on a coordinate plane.



d) Joseph's friend lives 4 miles away from him. About how long would it take Joseph to walk to his friend's house? Explain.

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a) Write the linear equation in two variables that represents the number of miles Joseph can walk in any given time interval, t.

Let C be the constant rate that Joseph walks in miles per minute. Then,

$\frac{0.5}{6} = C$, *and* $\frac{m}{t} = C$; *therefore,* $\frac{0.5}{6} = \frac{m}{t}$.

$$\frac{0.5}{6} = \frac{m}{t}$$
$$6m = 0.5t$$
$$\frac{6}{6}m = \frac{0.5}{6}t$$
$$m = \frac{0.5}{6}t$$

b) Complete the table below. Use a calculator, and round answers to the tenths place.

t (time in minutes)	Linear Equation: $m = \frac{0.5}{6}t$	m (distance in miles)
0	$m = \frac{0.5}{6}(0)$	0
30	$m = \frac{0.5}{6}(30)$	$\frac{15}{6} = 2.5$
60	$m = \frac{0.5}{6}(60)$	$\frac{30}{6} = 5$
90	$m = \frac{0.5}{6}(90)$	$\frac{45}{6} = 7.5$
120	$m = \frac{0.5}{6}(120)$	$\frac{60}{6} = 10$

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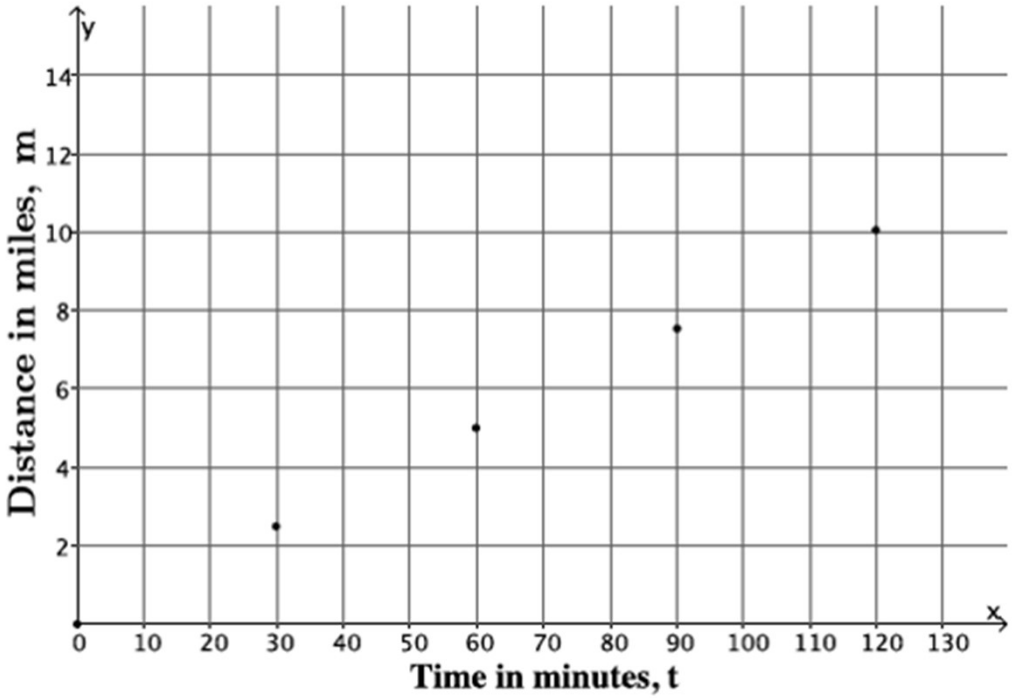
c) Graph the data on a coordinate plane.



d) Joseph's friend lives 4 miles away from him. About how long would it take Joseph to walk to his friend's house? Explain.

It will take Joseph a little less than an hour to walk to his friend's house. Since it takes 30 minutes for him to walk 2.5 miles and 60 minutes to walk 5 miles, and 4 is closer to 5 than 2.5, it will take Joseph less than an hour to walk the 4 miles.