

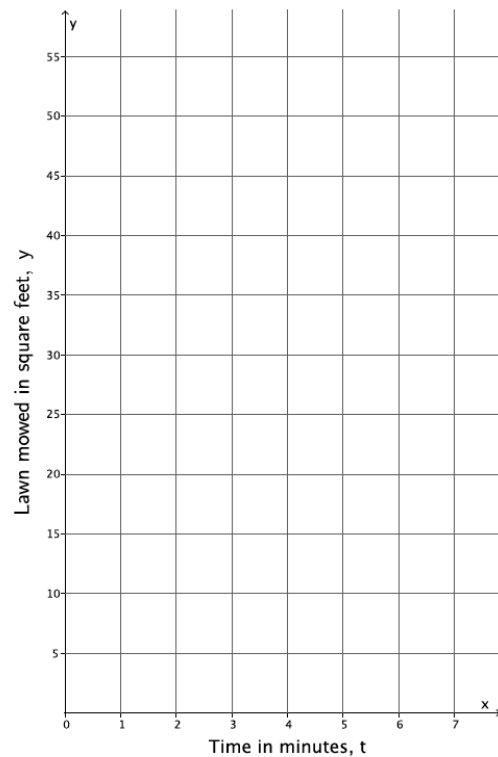
Lesson 11: Constant Rate

Classwork

Example 1

Pauline mows a lawn at a constant rate. Suppose she mows a 35 square foot lawn in 2.5 minutes. What area, in square feet, can she mow in 10 minutes? t minutes?

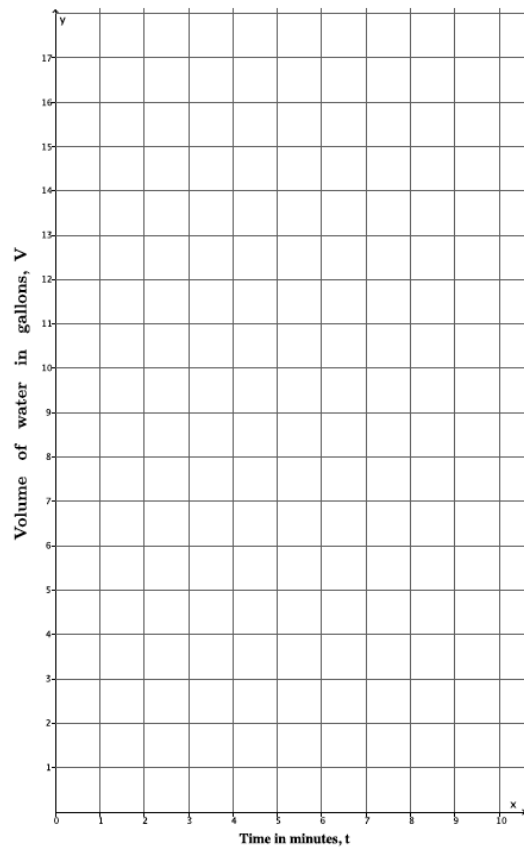
t (time in minutes)	Linear equation:	y (area in square feet)



Example 2

Water flows at a constant rate out of a faucet. Suppose the volume of water that comes out in three minutes is 10.5 gallons. How many gallons of water comes out of the faucet in t minutes?

t (time in minutes)	Linear equation:	V (in gallons)
0		
1		
2		
3		
4		



Exercises

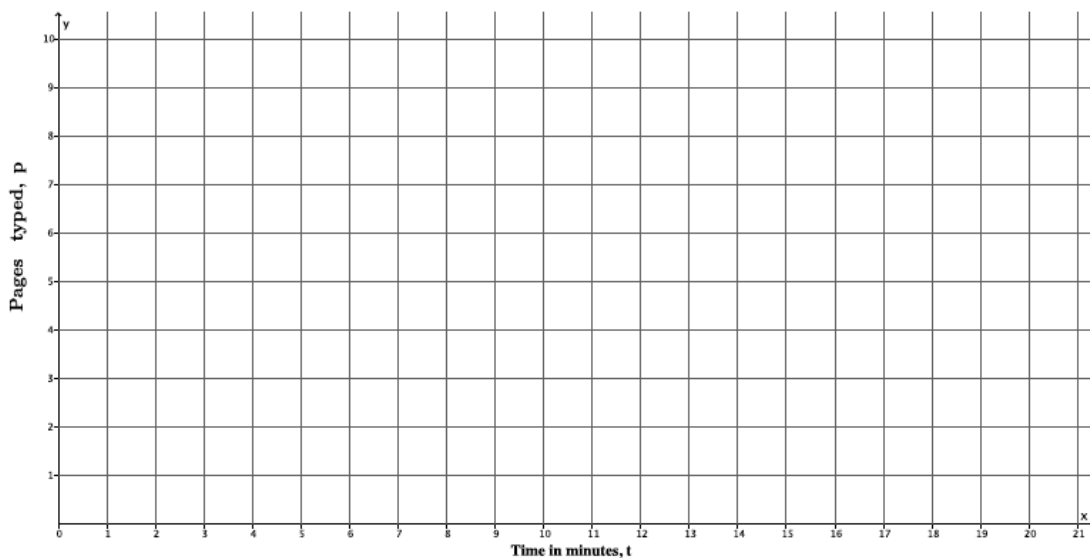
1. Jesus types at a constant rate. He can type a full page of text in $3\frac{1}{2}$ minutes. We want to know how many pages, p , Jesus can type after t minutes.

a. Write the linear equation in two variables that represents the number of pages Jesus types in any given time interval.

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

t (time in minutes)	Linear equation:	p (pages typed)
0		
5		
10		
15		
20		

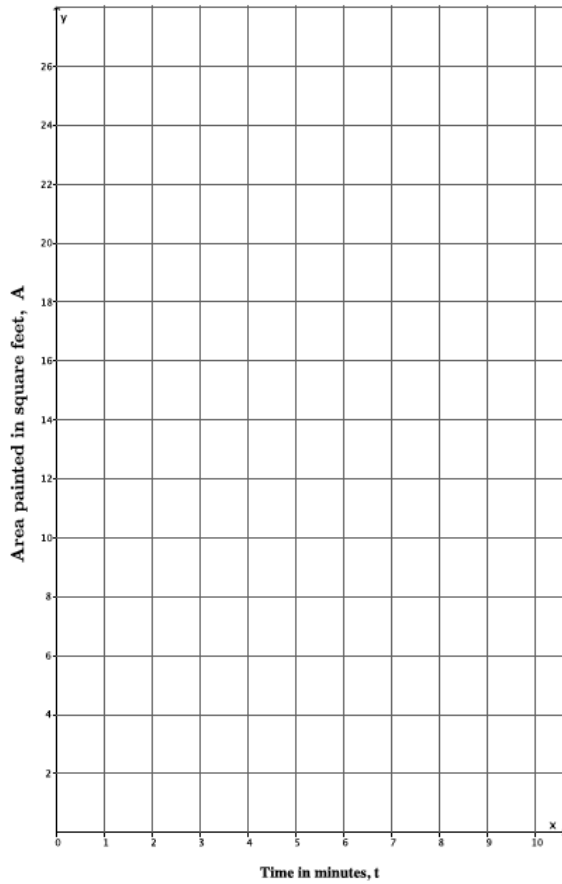
c. Graph the data on a coordinate plane.



- d. About how long would it take Jesus to type a 5-page paper? Explain.
2. Emily paints at a constant rate. She can paint 32 square feet in five minutes. What area, A , can she paint in t minutes?
- a. Write the linear equation in two variables that represents the number of square feet Emily can paint in any given time interval.
- b. Complete the table below. Use a calculator and round answers to the tenths place.

t (time in minutes)	Linear equation:	A (area painted in square feet)
0		
1		
2		
3		
4		

c. Graph the data on a coordinate plane.



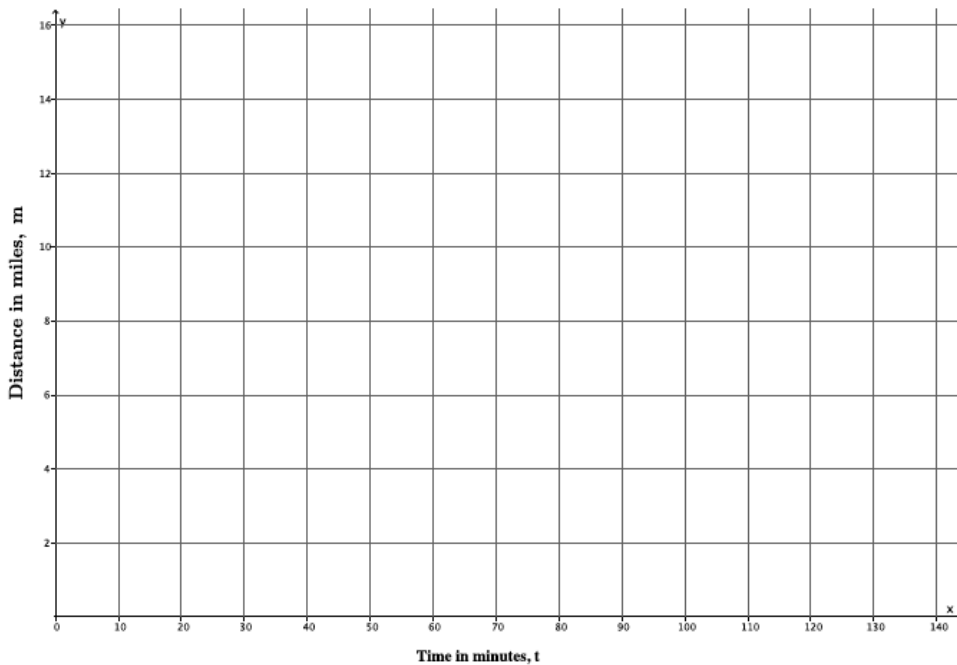
d. About how many square feet can Emily paint in $2\frac{1}{2}$ minutes? Explain.

3. Joseph walks at a constant speed. He walked to the store, 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		

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.

Lesson Summary

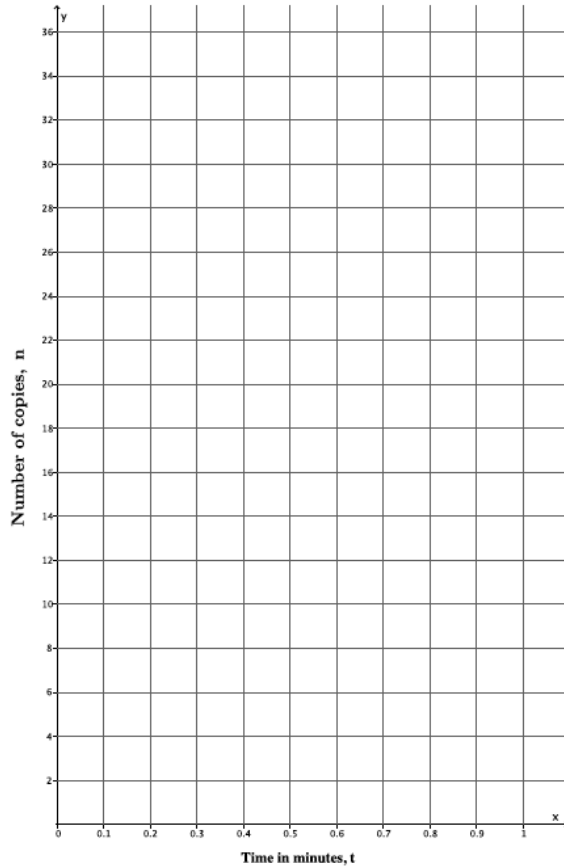
When constant rate is stated for a given problem, you can express the situation as a two variable equation. The equation can be used to complete a table of values that can then be graphed on a coordinate plane.

Problem Set

- A train travels at a constant rate of 45 miles per hour.
 - What is the distance, d , in miles, that the train travels in t hours?
 - How many miles will it have traveled in 2.5 hours?
- Water is leaking from a faucet at a constant rate of $\frac{1}{3}$ gallons per minute.
 - What is the amount of water, w , that is leaked from the faucet after t minutes?
 - How much water is leaked after an hour?
- A car can be assembled on an assembly line in 6 hours. Assume that the cars are assembled at a constant rate.
 - How many cars, y , can be assembled in t hours?
 - How many cars can be assembled in a week?
- A copy machine makes copies at a constant rate. The machine can make 80 copies in $2\frac{1}{2}$ minutes.
 - Write an equation to represent the number of copies, n , that can be made over any time interval, t .
 - Complete the table below.

t (time in minutes)	Linear equation:	n (number of copies)
0		
0.25		
0.5		
0.75		
1		

c. Graph the data on a coordinate plane.



d. The copy machine runs for 20 seconds, then jams. About how many copies were made before the jam occurred? Explain.

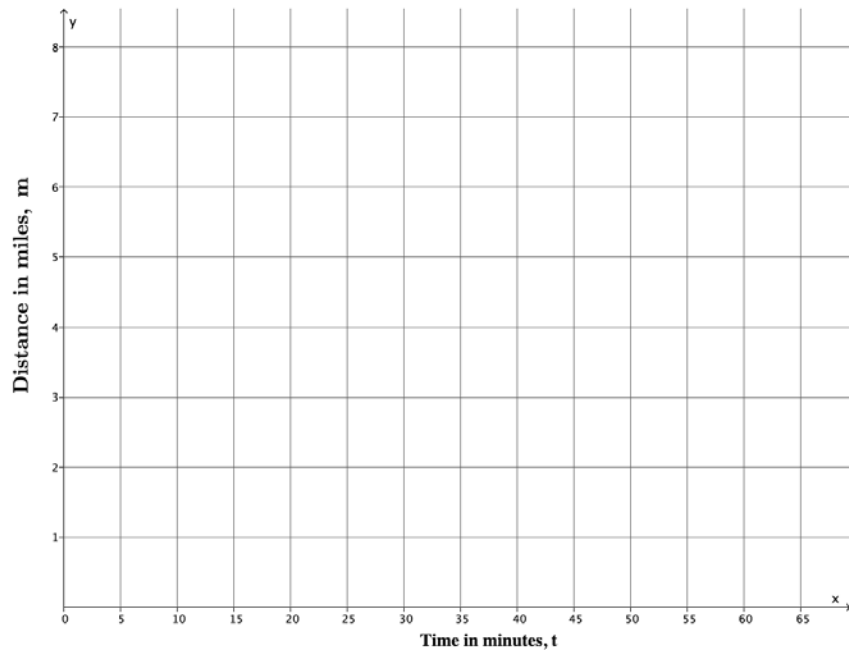
5. Connor runs at a constant rate. It takes him 34 minutes to run four miles.

a. Write the linear equation in two variables that represents the number of miles Connor can run 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		
15		
30		
45		
60		

c. Graph the data on a coordinate plane.



d. Connor ran for 40 minutes before tripping and spraining his ankle. About how many miles did he run before he had to stop? Explain.