HW: Constant of Proportionality

Created for you by Ms. Khotsoubanh

1. The table below shows the number of apples Logan uses to make apple pies.

Pies(x)	2	3	4	5
Number of Apples (y)	8	12	16	20

Write an equation that represents the rate of change for this table.

$m = \frac{y}{x} = \frac{8}{2} = 4$

$y = mx$

$y = 4x$

How many apples are needed to make 9 pies?

$y = 4(9)$

$y = 36$ apples

2. On Saturday, Alana recorded the number of text messages she sent from her phone. Her data is shown in the table below.

Write an equation the represents the rate of change in Alana's data.

$m = \frac{y}{x} = \frac{27}{3} = 9$

$y = mx$

$y = 9x$ ← equation

Hours (x)	Number of Texts (y)
3	27
5	45
7	63
9	81

How many text messages will she send in 2 hours?

$y = 9x$

$y = 9(2) \rightarrow$ 18 text messages

Name: Key

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Glue on page 57

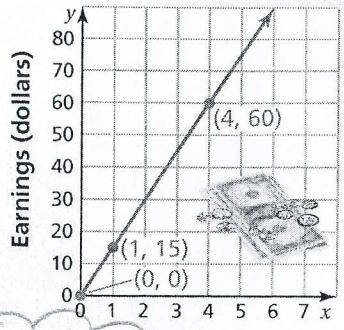
Identifying Proportional Relationships

Part A *Determine whether x and y represent a proportional relationship. Explain your reasoning.*

Part B *Write an equation for each graph representing a proportional relationship.*

$m = \frac{y}{x} = \frac{15}{1}$

Money

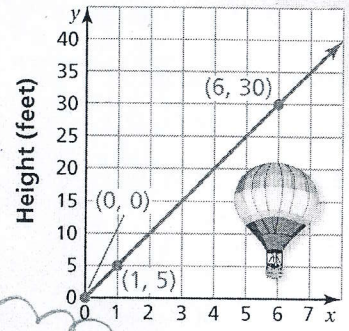


$y = 15x$

Yes, this is a proportional relationship b/c the line goes through the origin

4. $m = \frac{y}{x} = \frac{5}{1}$

Hot-Air Balloon

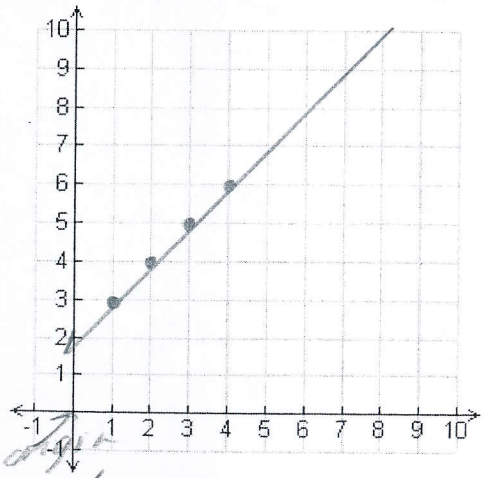


$y = 5x$

Yes, this is a proportional relationship b/c the line goes through the origin

Plot the points on the grid. Then use the graph to tell whether x and y are a proportional relationship.

x	y
1	3
2	4
3	5
4	6



This is not a proportional relationship b/c the graph does not go through the origin.

6. Natalie is on the school swim team. During practice, she records the number of laps she swims. Her data is shown in the table below.

Write an equation that represents the rate of change in Natalie's data.

$m = \frac{y}{x} = \frac{5}{10} = \frac{1}{2}$

$y = mx$

$y = \frac{1}{2}x$

Minutes (x)	Number of Laps (y)
10	5
20	10
30	15
40	20

How many laps will she swim in 14 minutes?

$y = \frac{1}{2}(14) \Rightarrow y = 7$ laps

7. Dylan's pet turtle is training for a race. Dylan times the turtle's practice run and records his data in the table below.

Minutes (x)	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1
Distance in feet (y)	$\frac{1}{2}$	1	$1\frac{1}{2}$	2

What is the distance the turtle will travel in $4\frac{1}{2}$ minutes?

$m = \frac{y}{x} = \frac{\frac{1}{2}}{\frac{1}{4}} = \frac{1}{2} \cdot 4 = 2$

$y = mx$

$y = 2x$

$y = 2(4.5)$

$y = 9$ ft

8. During cross country practice, Jordan records the number of miles she runs. Her data is shown in the table below. Write an equation that represents her data, and then complete the table.

Days (x)	3	4	10	18
Miles (y)	$\frac{1}{2}$	$\frac{2}{3}$	$1\frac{1}{3}$	3

$m = \frac{y}{x} = \frac{0.5}{3} = \frac{1}{6}$

$y = mx$

$y = \frac{1}{6}x$

$y = \frac{1}{6}(4) = \frac{2}{3}$

$y = \frac{1}{6}(10) = \frac{5}{3} = 1\frac{1}{3}$

$y = \frac{1}{6}(18) = 3$