HOMEWORK: Graphs of Constant of Proportionality

Created for you by Ms. Nhotsouvanh

1. An airplane flying at a speed represented by y = 450x, will travel from New York to Chicago in 3 hours. Use the equation to graph the relationship between the miles traveled, y, and the number of hours, x.

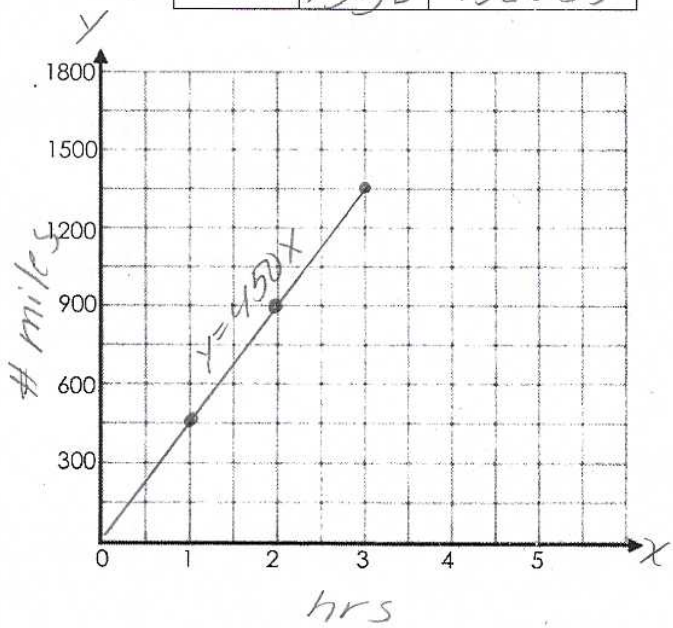
$y = 450x$

a. What is the constant of proportionality?

slope

$\frac{450 \text{ miles}}{1 \text{ hr}}$

x hours	y # miles	$y = 450x$
1	450	450(1)
2	900	450(2)
3	1350	450(3)



b. Explain what this represents in this situation. It takes 1 hour to cover 450 miles.

Name: Key

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2. Andrew is filling his pool with water. The table below shows the rate at which he fills the pool. Write an equation that represents the data, and then complete the table.

$y = \frac{1}{4}x$

Gallons (x)	2	8	14	20
Minute (y)	$\frac{1}{2}$	2	3.5	5

$y = \frac{1}{4}x$

$\frac{1}{2} = \frac{1}{4}(2)$

$= \frac{1}{4}(8)$

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

$\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{4}$

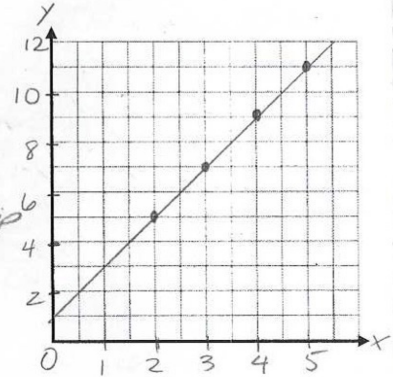
$y = \frac{1}{4}(14)$ $y = \frac{1}{4}(20)$

Determine if the table of values represent a proportional relationship. Use a graph to support your answer.

3.

x	2	3	4	5
y	5	7	9	11

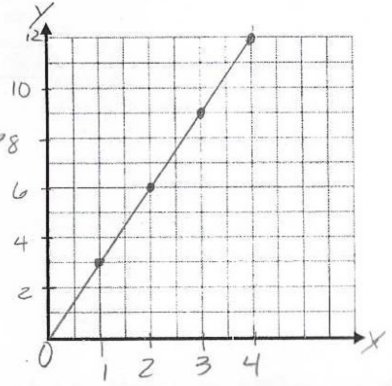
no, this does not represent a prop. relationship b/c the line does not go through the origin.



4.

x	1	2	3	4
y	3	6	9	12

yes, this is a prop. relationship b/c the line goes through the origin.



5. The amount y (in dollars) that Gavin earns by working x hours is represented by the equation $y = 9x$. Graph the equation and interpret the slope.

$y = 9x$

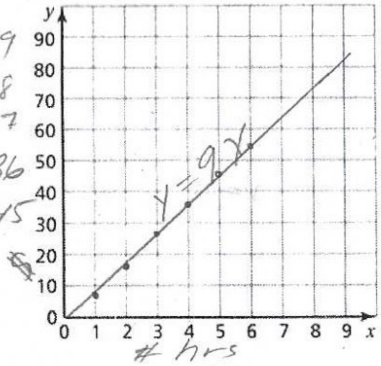
$y = 9(1) = 9$

$y = 9(2) = 18$

$y = 9(3) = 27$

$y = 9(4) = 36$

$y = 9(5) = 45$



$m = \frac{\$9}{1\text{ hr}}$

hrs

Gavin earns $9 for every hour he works.

6. The cost y (in dollars) to rent a bicycle is proportional to the number x of hours that you rent the bicycle. It costs $20 to rent the bicycle for 4 hours.

Part A Write an equation that represents the situation.

$y = 5x$

$y = 5(4)$

$y = \$20$

$m = \frac{\$5}{1\text{ hr}}$

Part B Interpret the slope. It cost $5 for every hour to rent the bike.

Part C How much does it cost to rent the bicycle for 6 hours?

$y = 5(6)$

$y = \$30$