

Warm up back of p 28

The ratio of red to blue marbles is 8 to 3. If there are 48 red marbles, how many blue marbles are there?

(make a ratio table)
$$\begin{array}{r} R \quad 8 \quad 48 \\ \hline B \quad 3 \quad (18) \end{array}$$

Determine the constant rate for each table.

x	2	3	4
y	10	15	20

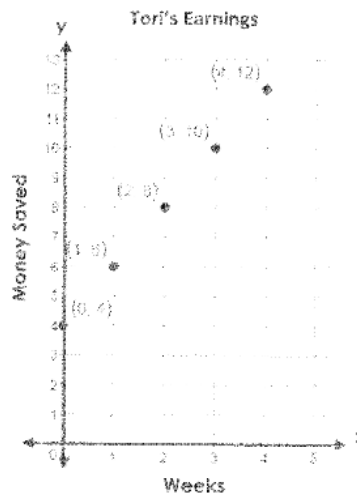
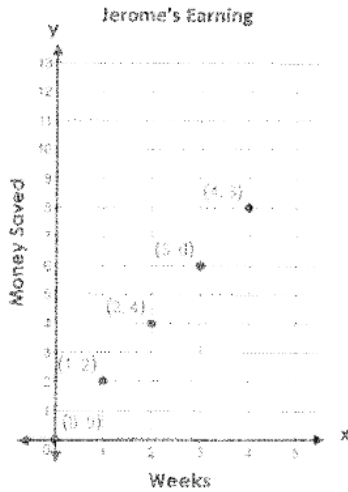
$$\frac{10}{2} = 5 \quad \frac{15}{3} = 5 \quad (5)$$

x	-4	-2	6
y	-2	-1	3

$$-3$$

SOI 6.12 Task 3

Jerome wants to start saving money. He has no money in his bank account. He will save \$2 per week. Tori has saved \$4 in her bank account. She will also save \$2 per week. The graphs below represent the amount of money each will save per week.



1. Use the points on the graph to fill in the tables.

Jerome

Weeks	Money Saved
0	0
1	2
2	4
3	6
4	8

Tori

Weeks	Money Saved
0	4
1	6
2	8
3	10
4	12

2. Select two of the non-zero $\frac{\text{Money Saved}}{\text{Weeks}}$ ratios within Jerome's table and within Tori's table, and identify which situation is proportional.

✓ J $\frac{2}{1} = 2$ $\frac{8}{4} = 2$ T $\frac{6}{1} = 6$ $\frac{8}{2} = 4$

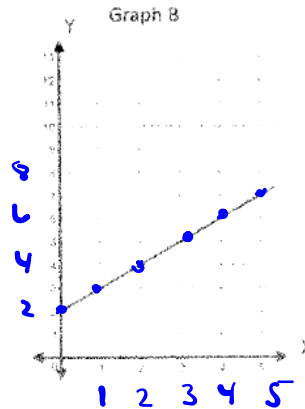
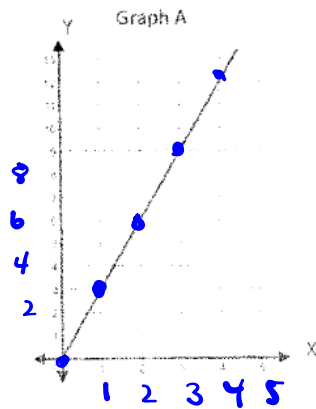
3. What makes a table appear to be proportional or non-proportional? Explain your reasoning.

(0,0) proportional (0,4) NP

4. Explain the value for money saved at week 0 for Jerome and Tori.

J = 0 T = 4

modified from Virginia Department of Education



5. How are these graphs similar to Jerome and Tori's graphs?

A begins (0,0) B begins (0,2)

6. Which graph above represents a proportional relationship? Which graph above represents a non-proportional relationship? Explain your reasoning.

A Ratio = 3

Proportional Relationships Graphs	The graph of a proportional relationship is a <u>line</u> that ALWAYS <u>begins at (0,0)</u> To find the constant of proportionality given a graph, pick a point and <u>divide $y \div x$</u> <small>slope</small>
	Directions: Determine if the graph represents a proportional relationship. If yes, identify the <u>constant of proportionality</u> and write an equation to represent the relationship.
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>10.</p> <p>Gallons of Gas Used</p> </div> <div style="text-align: center;"> <p>11.</p> <p>Pounds of Candy</p> </div> <div style="text-align: center;"> <p>12.</p> <p>Months</p> </div> </div>

Slope = $\frac{y}{x}$

NP slope = 20

$\frac{y}{x} = 20$

$y = 20x$

P slope = 1.5

$y = 1.5x$

NP

Proportional Relationships
Equations/Slope

Slope is the rate of change between any two points on a line.
Slope measures the slant of a line.
Slope is a ratio of the vertical change, called the y, to the horizontal change, called the x, between any two points on the line.

Variable for slope: m
Equation for slope: $m = \frac{y-y}{x-x}$

Use the following to find the slope: $\frac{\text{change in } y}{\text{change in } x}$

Directions: Given the values in the table, identify the slope and write an equation to represent the relationship.

6.

Hours	Tickets
1	17
2	34
3	51
4	68

$m=17$
 $y=17x$

7.

Minutes	Calories
6	48
15	120
24	192
30	240

$y=8x$

8.

Pounds	Cost
0.5	\$0.75
1	\$1.50
1.5	\$2.25
2	\$3.00

$y=1.5x$

9.

List Price	Sale Price
\$12	\$9.00
\$25	\$18.75
\$30	\$22.50
\$48	\$36.00

$y=.75x$
 $y=\frac{3}{4}x$

Put it all together!
Complete the table
Write an equation
Graph

13. Troy burns four calories per minute while walking his dog.

a)

Minutes	Calories
0	0
1	4
2	8
3	12

c)

b) $y=4x$

14. Gas costs \$2.50 per gallon.

a)

Gallons	Cost
0	
5	
10	
15	

c)

b)

SOL 7.10a Practice ProblemsRemember: slope = $\frac{\text{change in } y}{\text{change in } x} = \frac{\text{vertical change}}{\text{horizontal change}}$

1. Determine the slope,
- m
- , of the proportional relationship.

$$m = \frac{y-y}{x-x}$$

x	y
1	4
2	8
3	12

$$\frac{8-4}{2-1}$$

$$m = 4$$

2. Write an equation in
- $y = mx$
- based on the information above.

Equation:

$$y = 4x$$

3. Determine the slope,
- m
- , of the proportional relationship.

$$m = \frac{y-y}{x-x}$$

x	y
6	4
9	6
12	8

$$\frac{6-4}{9-6}$$

$$m = \frac{2}{3}$$

4. Write an equation in
- $y = mx$
- based on the information above.

Equation:

$$y = \frac{2}{3}x$$

5. Determine the slope,
- m
- , of the proportional relationship.

x	y
-3	-3
-1	-1
2	2

$$m = 1$$

$$y = 1x$$

6. Write an equation in $y = mx$ based on the information above.

Equation:
 $y = 1x$

7. The ordered pairs (2, 6) and (4, 12) make up points that could be included on the graph of a proportional relationship. Determine the slope, or rate of change, of a line passing through these points.

x	y
2	6
4	12

m = 3

8. Write an equation in $y = mx$ based on the information above.

Equation:
 $y = 3x$

9. The ordered pairs (-5, -1) and (10, 2) make up points that could be included on the graph of a proportional relationship. Determine the slope, or rate of change, of a line passing through these points.

-5	-1	$\frac{2 - (-1)}{10 - (-5)} = \frac{3}{15}$	$m = \frac{1}{5}$
10	2		

10. Write an equation in $y = mx$ based on the information above.

Equation:
 $y = \frac{1}{5}x$

11. Determine the slope, m , and write an equation in the form based on the information provided in the situation below. Complete the table and write the equation in the box.

"Three apples are sold for \$0.50 at a local grocery store."

x	y

$m =$

Equation:

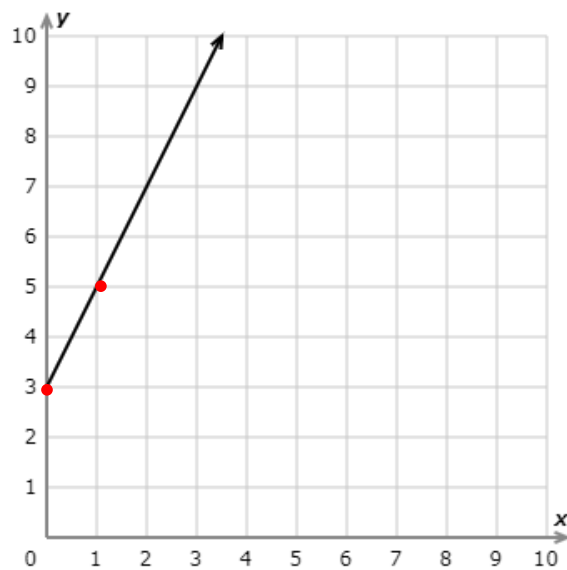
12. Determine the slope, m , and write an equation in the form based on the information provided in the situation below. Complete the table and write the equation in the box.

"It takes 4 workers 2 hours to complete a task."

x	y

$m =$

Equation:



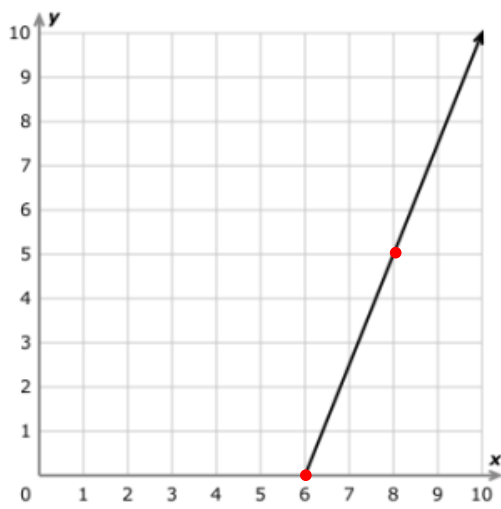
Finding slope from a graph:

~select two points

~count the distance between the y coordinates, count distance between x coordinates

~write as a fraction y/x

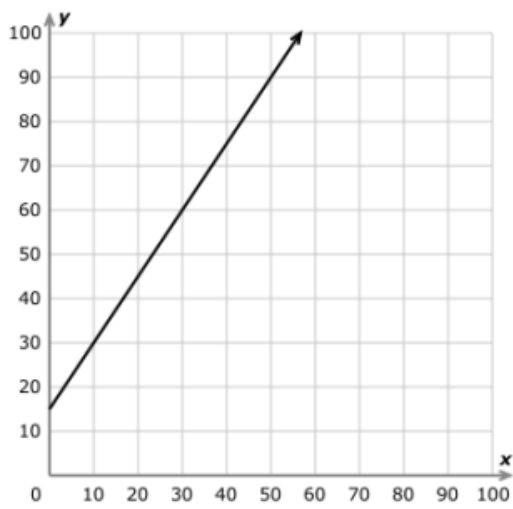
Look at this graph:



What is the slope?

Simplify your answer and write it as a proper fraction, improper fraction, or integer.

Look at this graph:



What is the slope?

Simplify your answer and write it as a proper fraction, improper fraction, or integer.

IXL 7th grade

Lesson V.1 (find slope from a graph)

~reach smart score of 80

~complete test review in google classroom, submit when you are finished