

Warm Up:

Circle the proportional relationships.

① YES!

x	y
3	2
6	4
9	6
12	8

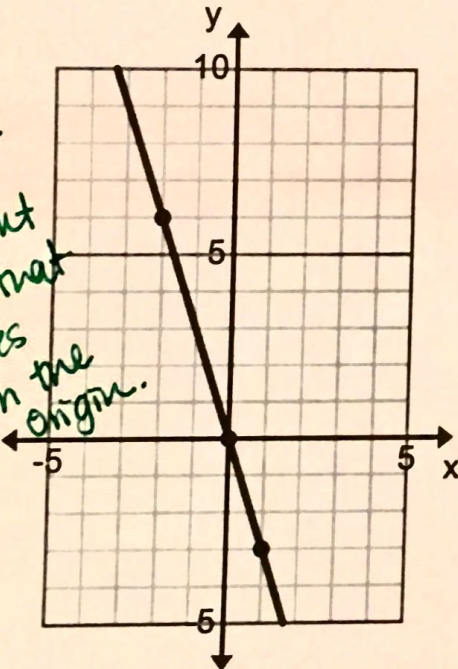
$$\frac{y}{x} = \frac{2}{3} = .\bar{6} \quad \frac{4}{6} = .\bar{6}$$

$$\frac{6}{9} = .\bar{6} \quad \frac{8}{12} = .\bar{6}$$

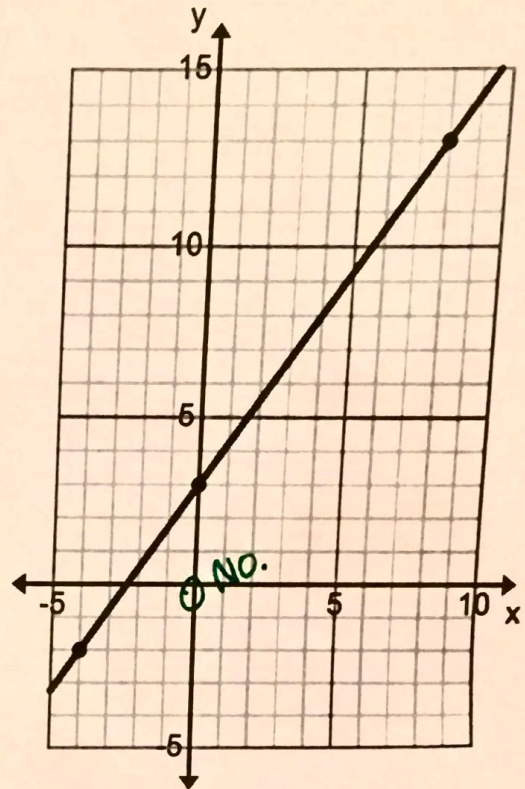
③

YES!

Straight  
line that  
passes  
through the  
origin.



2.



4.

x	1	2	3	4
y	5	8	11	14

$$\frac{y}{x} \quad \frac{5}{1} = 5 \quad \frac{8}{2} = 4$$

$$5 \neq 4$$

Not proportional.

# Notes 7-4

Int 1

Tables, Equations, Graphs

Unit 7

Ex. 1:

	$x \cdot 2 = y$	
	1 $\xrightarrow{\cdot 2}$ 2	
+2	3 $\xrightarrow{\cdot 2}$ 6	+4
+2	5 $\xrightarrow{\cdot 2}$ 10	+4
+2	7 $\xrightarrow{\cdot 2}$ 14	+4

CROC = constant rate of change

CROC =  $\frac{\text{change in } y}{\text{change in } x}$

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

COP =  $\frac{y}{x}$      $\frac{2}{1} = 2$      $\frac{10}{5} = 2$     COP = 2  
                    $\frac{6}{3} = 2$      $\frac{14}{7} = 2$

If  $x=216$ , How would we find  $y=?$

well,  $y=2 \cdot x$  so  $y=2(216)$

$y=432$

Equation is HELPFUL!

\*When COP=CROC, we have a proportional relationship! \*

If NO COP, then it's NOT proportional

Ex. 2:

x	-8	-4	0	4
y	8	4	0	-4

CROC =  $\frac{\text{change in } y}{\text{change in } x} =$

CROC =  $\frac{-4}{4} = -1$

COP =  $\frac{y}{x}$      $\frac{8}{-8} = -1$      $\frac{0}{0}$  IGNORE THIS ONE...  
                    $\frac{4}{-4} = -1$      $\frac{-4}{4} = -1$

CROC:

2

COP:

2

Equation:

$x \cdot 2 = y$

$y = 2 \cdot x$

$y = 2x$

CROC:

-1

COP:

-1

Equation:

$x \cdot -1 = y$

$y = (-1) \cdot x$

$y = -1x$

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Ex. 3:

x	2	3	5	6
y	6	9	15	18

$\xrightarrow{+1}$   $\xrightarrow{+2}$   $\xrightarrow{+1}$   
 $\xrightarrow{+3}$   $\xrightarrow{+6}$   $\xrightarrow{+3}$

CROC =  $\frac{3}{1}$  or  $\frac{6}{2} = 3$

COP =  $\frac{y}{x}$   
 $\frac{6}{2} = 3$     $\frac{9}{3} = 3$   
 $\frac{15}{5} = 3$     $\frac{18}{6} = 3$

CROC:

3

COP:

3

Equation:

$y = 3x$

Ex. 4:

x	6	9	15	18
y	2	3	5	6

$\xrightarrow{+3}$   $\xrightarrow{+6}$   $\xrightarrow{+3}$   
 $\xrightarrow{+1}$   $\xrightarrow{+2}$   $\xrightarrow{+1}$

CROC =  $\frac{\text{change in } y}{\text{change in } x} = \frac{1}{3}$  or  $\frac{2}{6} = \frac{1}{3}$

COP =  $\frac{y}{x}$   
 $\frac{2}{6} = \frac{1}{3}$     $\frac{3}{9} = \frac{1}{3}$   
 $\frac{5}{15} = \frac{1}{3}$     $\frac{6}{18} = \frac{1}{3}$

CROC:

$\frac{1}{3}$

COP:

$\frac{1}{3}$

Equation:

$y = \frac{1}{3}x$

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Int 1

## Tables, Equations, Graphs

Unit 7

Ex. 5:

x	1	2	3	4
y	5	8	11	14

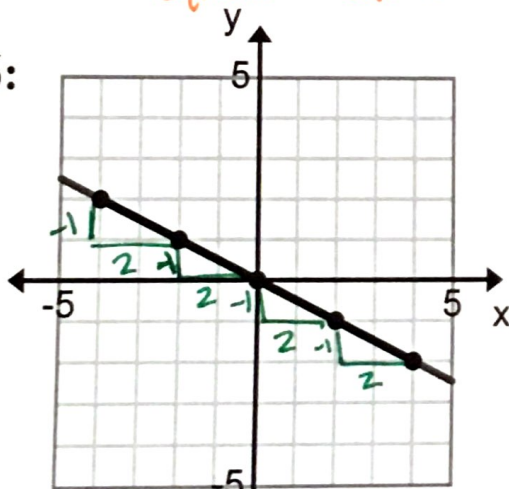
$1 \cdot 3 = 3$ ,  $2 \cdot 3 = 6$ ,  $3 \cdot 3 = 9$ ,  $4 \cdot 3 = 12$   
 $5 = 12 + 2$   
 works every time!

CROC =  $\frac{3}{1}$

COP =  $\frac{y}{x}$      $\frac{5}{1} = 5$      $\frac{8}{2} = 4$     NOT the same.  
 $\frac{11}{3} = 3.6$      $\frac{14}{4} = 3.5$     NOT proportional

\* Find EQUATION: When there's NO COP, we still use the CROC to write the equation BUT we have to + or - a #.

Ex. 6:



$$\text{CROC} = \frac{\text{change in } y}{\text{change in } x} = \frac{-1}{2}$$

CROC:

3

COP:

NONE.

Equation:

$y = 3 \cdot x + 2$

CROC:

$-\frac{1}{2}$

COP:

$-\frac{1}{2}$  Because it's proportional, so it's the same as the CROC

Equation:

$y = (-\frac{1}{2}) \cdot x$