

Name: **KEY**

Learning Target 2 – 2: Linear Equations, Slope, and Rates of Change

<u>Learning Target</u> <i>(L – T)</i>	<u>Procedural Context</u>
<p>2 – 2</p> <p>Linear Equations, Slope, and Rates of Change</p>	<ul style="list-style-type: none"> • Graph Slope-Intercept Form and Standard Form • Slope: <ul style="list-style-type: none"> ○ From a Graph ○ From Two Points (Using Slope Equation) ○ 4 types of Slope • Rates of Changes <ul style="list-style-type: none"> ○ Relationship to Slope with Units ○ Contextual Examples link to Slope-Intercept Form

Self-Reflection

For this Learning Target I am feeling:

Discuss your work habits leading up to this Check-In:

Your Level of Understanding of this Learning Target is:

My Feedback:

Emerging Level Questions

1. Find the slope of the line that goes through the following pairs of points

a) (-2, 5) and (4, -3)

$$\begin{matrix} \text{pt 1} & \text{pt 2} \\ \frac{-3-5}{4-(-2)} = \frac{-8}{6} = \boxed{\frac{-4}{3}} \end{matrix}$$

b) (6, -2) and (-4, -2)

$$\frac{-2-(-2)}{-4-6} = \frac{0}{-10} = \boxed{0}$$

c) (4, 5) and (4, 9)

$$\frac{9-5}{4-4} = \frac{4}{0}$$

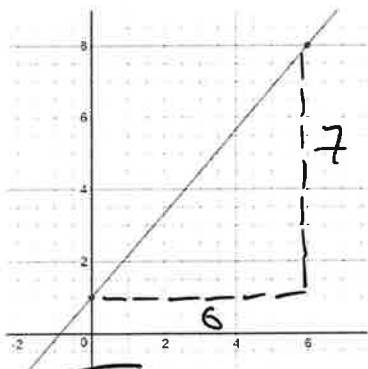
undefined

d) (-4, 7) and (6, -2)

$$\frac{-2-7}{6-(-4)} = \boxed{\frac{-9}{10}}$$

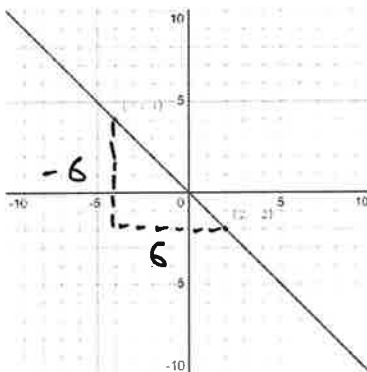
2. What is the slope of the graphs below

a) Watch Scale



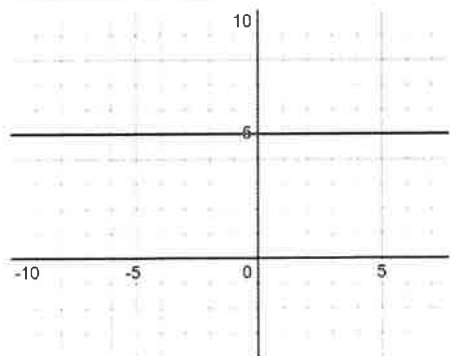
Slope: $\boxed{\frac{7}{6}}$

b)



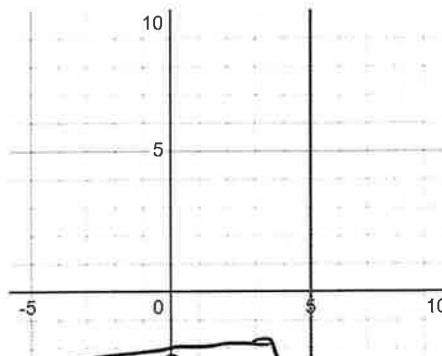
Slope: $\boxed{-1}$

c)



Slope: $\boxed{0}$

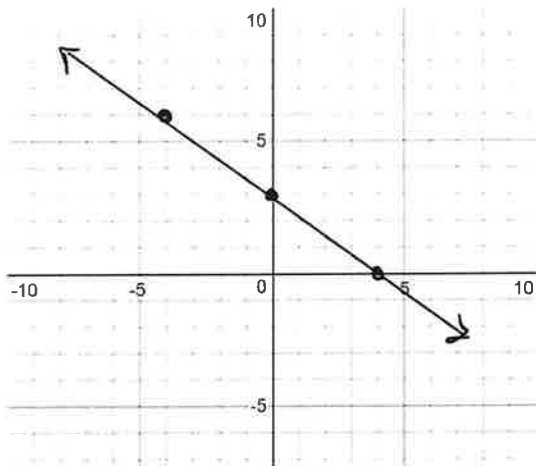
d)



Slope: **undefined**

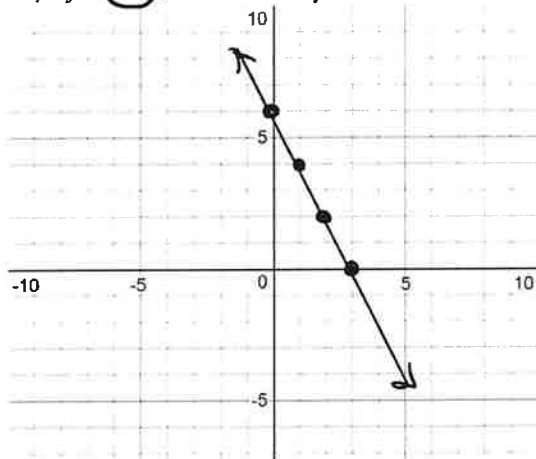
3. Graph the following functions

a) $3x + 4y = 12$

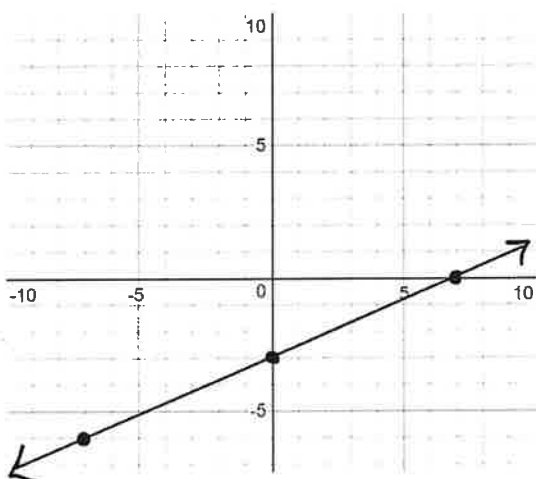


$x=0 \quad y=3$
 $x=4 \quad y=0$
 if $x=-4$
 $-12 + 4y = 12$ \rightarrow $4y = 24$
 $y = 6$

b) $y = -2x + 6$ ← *Slope* y -int



c) $3x - 7y = 21$

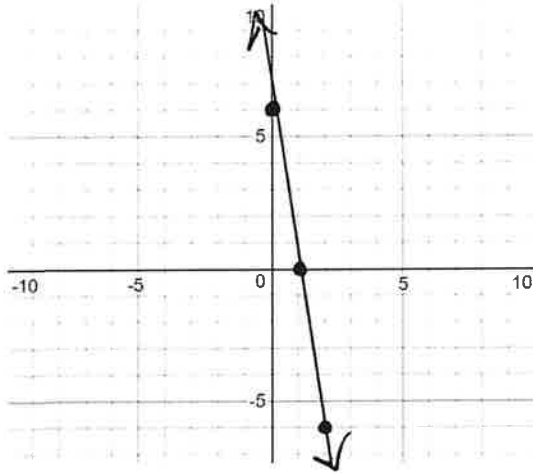


$x=0 \quad y=-3$
 $y=0 \quad x=7$
 $x=-7$
 $-21 - 7y = 21$
 $-7y = 42$
 $y = -6$

Proficient Level Questions

4. Graph the following functions.

a) $3x + \frac{1}{2}y = 3$



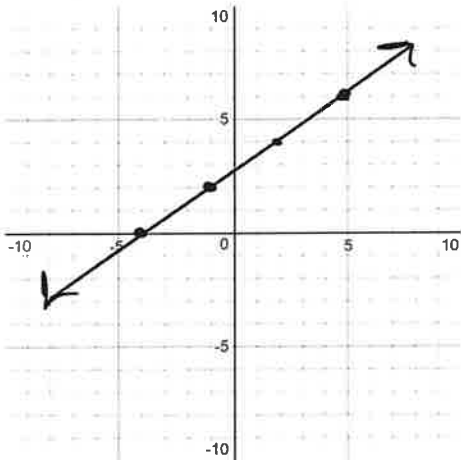
$\left(3x + \frac{1}{2}y = 3 \right) \times 2$

$6x + y = 6$

$x=0 \quad y=6$
 $y=0 \quad x=1$

$x=2 \quad y=-6$

b) $2x - 3y = -8$

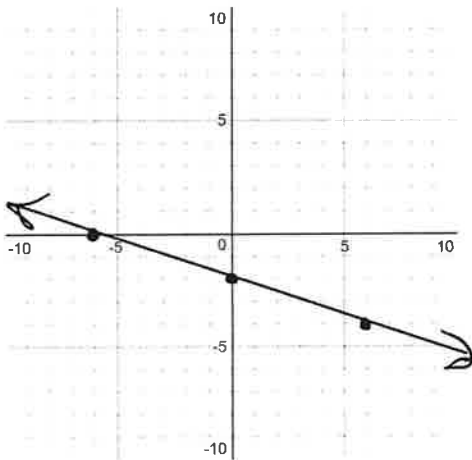


$y=0$ convert to S-I form
 $x=-4$

$-3y = -2x - 8$

$y = \frac{2}{3}x + \frac{8}{3}$

c) $\frac{x}{6} + \frac{y}{2} = -1$



$\left(\frac{x}{6} + \frac{y}{2} = -1 \right) \times 12$

$2x + 6y = -12$

$x=0 \quad y=-2$
 $y=0 \quad x=-6$

$x=6 \quad y=-4$

5. George rents a motor scooter to travel around Crescent Beach. It costs him \$36.00 to travel for 3.5 hours and \$78.00 to travel for 7 hours. After three hours he travelled 42km and after 7 hours he travelled 96km.

a. Determine the average speed in km/h

$$\frac{96 - 42}{7 - 3} = \frac{54}{4} = \boxed{13.5 \text{ km/hr}}$$

b. Determine the rental rate in \$/hr

$$\frac{78 - 36}{7 - 3.5} = \frac{42}{3.5} = \boxed{\$ 12/\text{hr}}$$

Extending Level Questions

6. Find the number n , so that the line passing through the point $(-3, 5)$ and $(4, n)$ has slope of 3.

$$\frac{n - 5}{4 - (-3)} = 3 \quad \frac{n - 5}{7} = 3$$

$$n - 5 = 21 \quad \boxed{n = 26}$$

7. Cecil rents a van to take the Junior Boys Soccer team to a three-day tournament. The odometer read 36 645km when he picked it up, and read 37 118km when the van was returned. The total cost of the trip, including the 60 litres of gas used, was \$180.

a) Determine the rate of gas consumption in L/km.

$$\frac{60}{37\,118 - 36\,645} = \frac{60}{473} = \boxed{0.13 \text{ L/km}}$$

b) Determine the average cost of renting the van in dollars per day.

$$\frac{180}{3} = \boxed{\$60/\text{day}}$$

c) Determine the average distance travelled per day.

$$\frac{37\,118 - 36\,645}{3 - 0} = \frac{473}{3} = \boxed{157.67 \text{ km/day}}$$

d) Determine the rental rate in cents per km.

$$\$180 = 18\,000 \text{¢}$$

$$\frac{18\,000 \text{¢}}{473 \text{ km}} = \boxed{38 \text{ ¢/km}}$$