Essential Question: How do we determine the slope of a linear function?

Do Now:

Graph $\frac{2}{3}y = 4 - \frac{1}{2}x$ using the intercept method.

x int: $(y=0)$

$\frac{2}{3}(0) = 4 - \frac{1}{2}x$
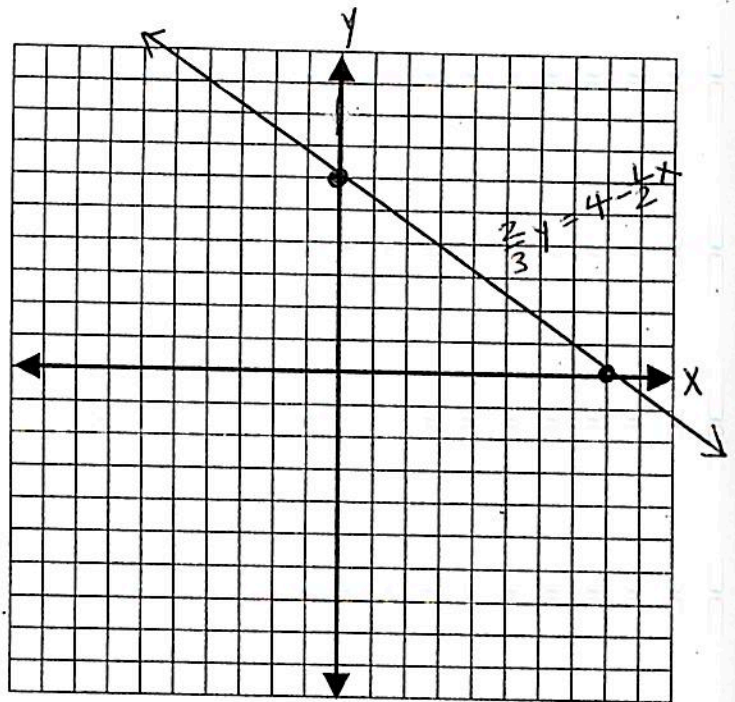
$0 = 4 - \frac{1}{2}x$

$-4 = -\frac{1}{2}x$

$8 = x$

y int: $(x=0)$

$\frac{2}{3}y = 4 - \frac{1}{2}(0)$

$\frac{2}{3}y = 4$

$y = 6$

or =

$6\left(+\frac{1}{2}x + \frac{2}{3}y\right) = (4)6$

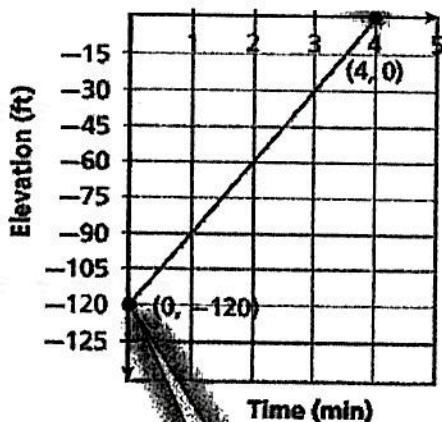$3x + 4y = 24$

x int:

$\frac{C}{A} \rightarrow \frac{24}{3} = 8$

y int:

$\frac{C}{B} \rightarrow \frac{24}{4} \rightarrow 6$

$\frac{2}{3}y = 4 - \frac{1}{2}x$

Identifying and Interpreting Intercepts

For each graph below, identify the x and y-intercepts. What does each intercept represent?

1. A diver explored the ocean floor 120 feet below the surface and then ascended at a rate of 30 feet per minute. The graph shows the diver's elevation below sea level during the ascent.
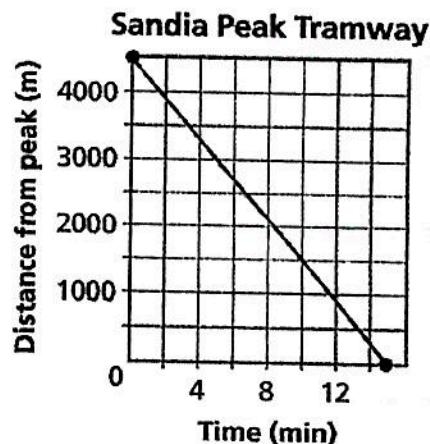

(4, 0)

(0, -120)

xint: 4

It took 4 minutes to reach the surface.

yint = -120

The diver began at 120 feet below the surface.

2. The Sandia Peak Tramway in Albuquerque, New Mexico travels a distance of about 4500 meters to the top of Sandia Peak. Its speed is 300 meters per minute. The graph shows the tram's distance from the summit to the base.

Sandia Peak Tramway

xint = 15

It took 15 minutes to reach the peak.

yint = 4500

The distance from the peak is 4500 meters.

Essential Question: How do we determine the slope of a linear function?

Slope of a Line

Slope is a number (*ratio*) that describes the ___steepness___ of a line. It is the constant ___rate of change___ .

Types of Slope

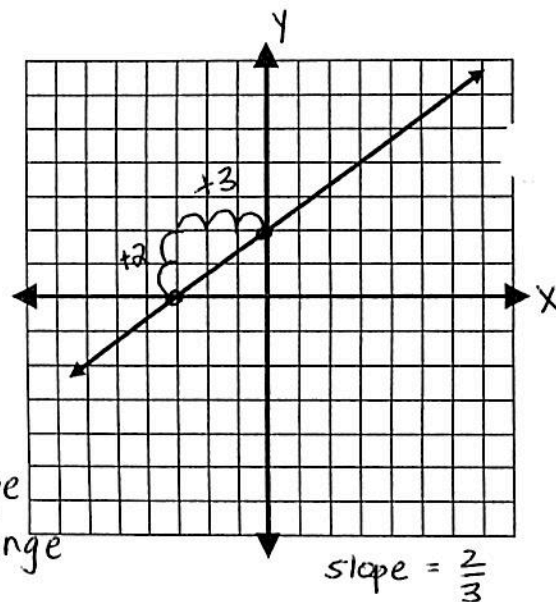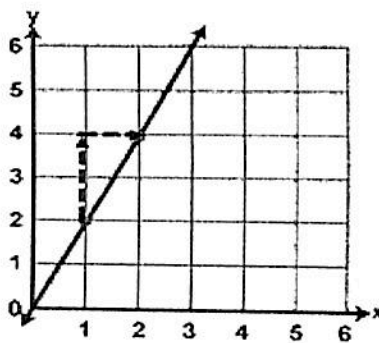___positive___   ___negative___   ___zero___   ___undefined___
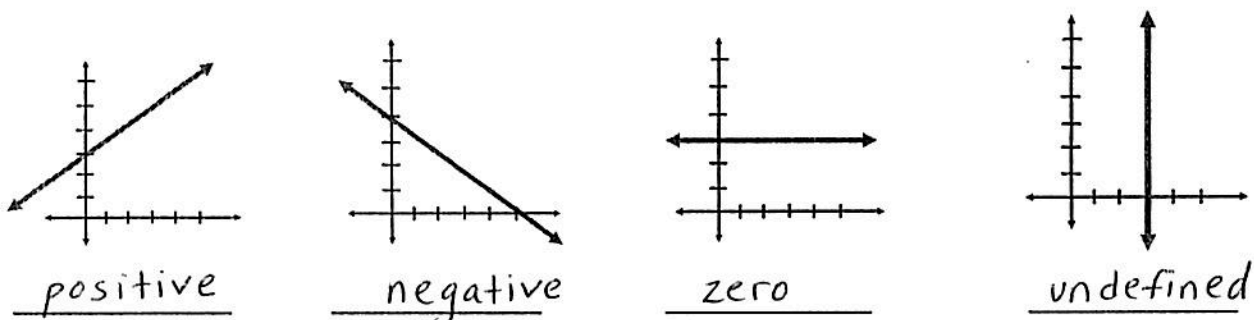
Finding Slope From a Graph

1) Locate any two points on the line

2) Determine the rise and run between the two points.

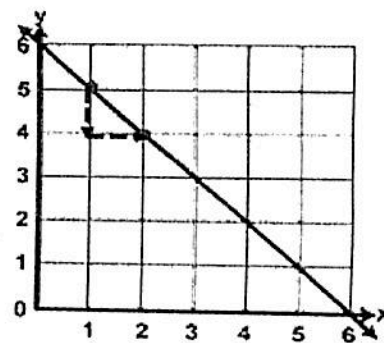3) Create a ratio $\left(\dfrac{rise}{run}\right)$ and simplify.

※ slope $\dfrac{rise}{run}$ $\dfrac{vertical\ change}{horizontal\ change}$

slope $= \dfrac{2}{3}$

Find the slope of each line using $\dfrac{rise}{run}$

$\dfrac{2}{1} = 2$

$\dfrac{-1}{1} = 1$