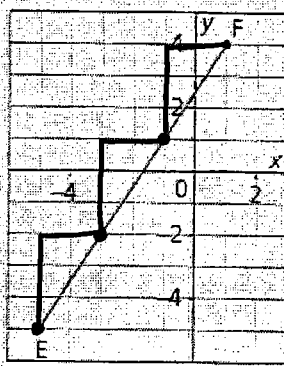KEY

Foundations of Math & Pre-Calculus 10
Lesson 6.1 ~ Slope of a Line

In the previous lessons, we calculated the rate of change of a linear function:
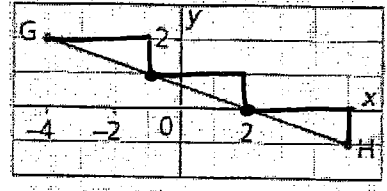
$$rate\ of\ change = \frac{change\ in\ dependent\ variable}{change\ in\ independent\ variable} = \frac{rise}{run} = slope = m$$

Example #1: Determine the slope of each graphed line segment.

$$m = \frac{rise}{run}$$
$$m = \boxed{\frac{3}{2}}$$
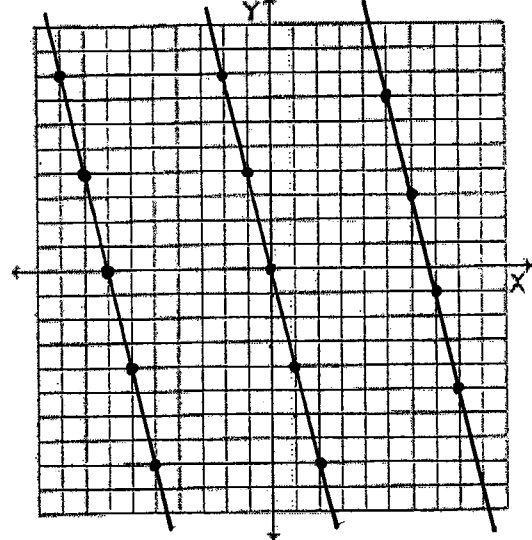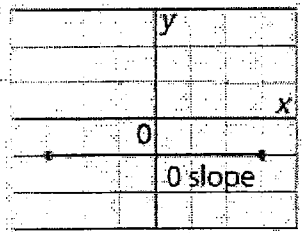
$$m = \frac{rise}{run}$$
$$m = \boxed{-\frac{1}{3}}$$

Example #2: Draw three line segments with slope −4.

$$m = -4 = \frac{-4}{1}$$
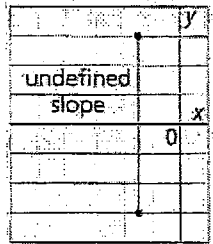
"Special" Slopes: horizontal and vertical lines

$$Slope = \frac{rise}{run}$$
$$Slope = \frac{0}{run}$$
$$Slope = 0$$

$$Slope = \frac{rise}{run}$$
$$Slope = \frac{rise}{0}$$

Slope is undefined.

Example #3: Determine the slope of the line that passes through (4, −5) and (8, 6).
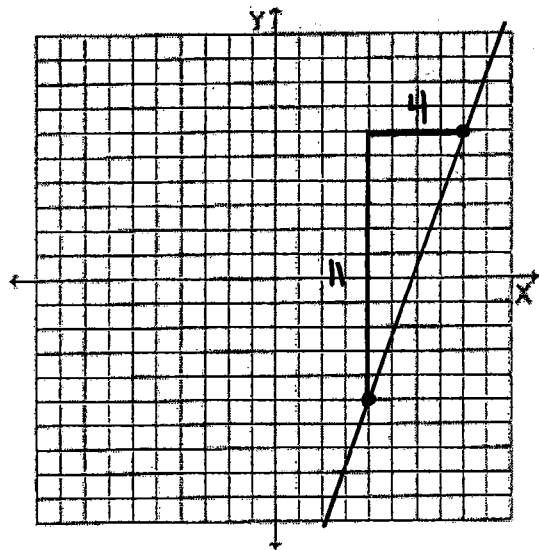
$$m = \frac{rise}{run} = \boxed{\frac{11}{4}}$$

A line passing through point $A(x_1, y_1)$ and $B(x_2, y_2)$ has slope $m = \frac{y_2 - y_1}{x_2 - x_1}$.

Example #4: Determine the slope of the line that passes through (1, 24) and (3, 72).

$$(x_1 , y_1) \qquad (x_2 , y_2)$$
$$(1 , 24) \qquad (3 , 72)$$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{72 - 24}{3 - 1}$$

$$= \frac{48}{2}$$

$$= \boxed{24}$$