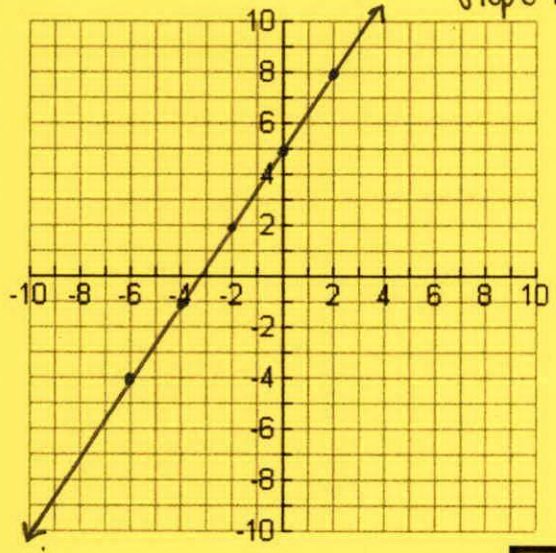
Name: Key

SLOPE Reference Sheet!

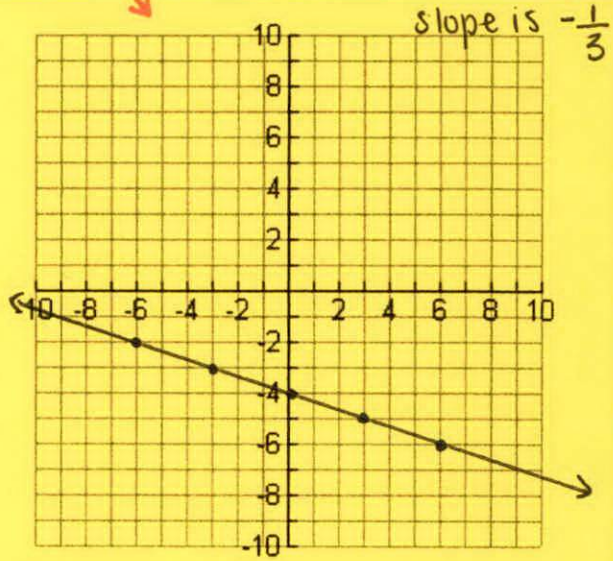
TYPES OF SLOPE

POSITIVE SLOPE



$\frac{\text{Rise}}{\text{Run}} = \frac{+\#}{+\#} = \frac{-\#}{-\#} = \frac{\Delta y}{\Delta x}$

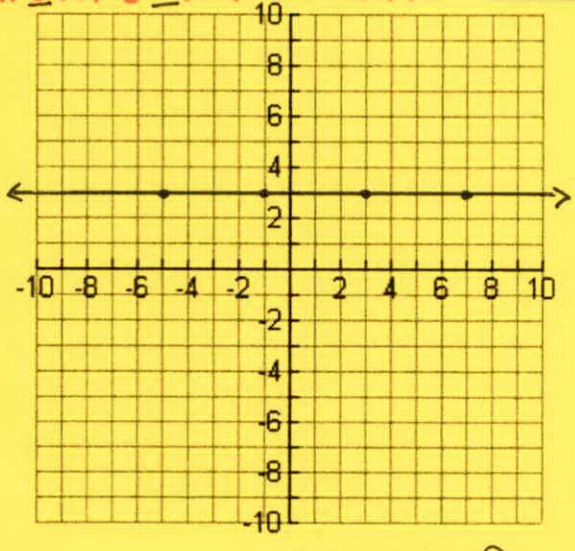
NEGATIVE SLOPE



$\frac{\text{Rise}}{\text{Run}} = \frac{+\#}{-\#} = \frac{-\#}{+\#} = \frac{\Delta y}{\Delta x}$

ZERO SLOPE

~~Zero~~ HORIZONTAL Line



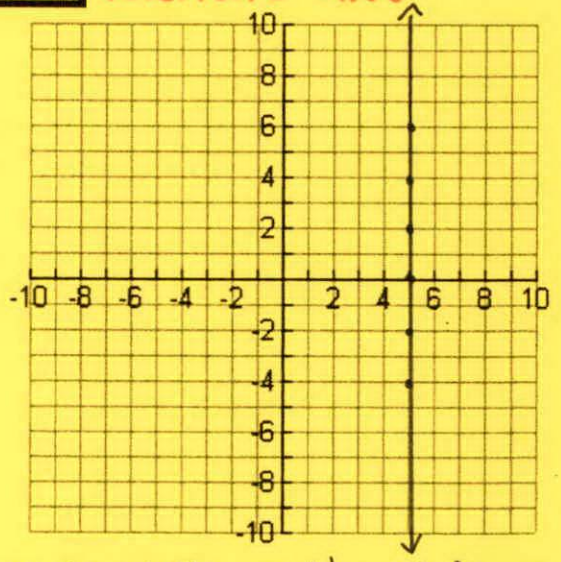
slope is 0

$\frac{\text{Rise}}{\text{Run}} = \frac{0}{\#} = \frac{\Delta y}{\Delta x}$

UNDEFINED SLOPE

Undefined

VERTICAL LINE



slope is UND → Up-N-Down

$\frac{\text{Rise}}{\text{Run}} = \frac{\#}{0} = \frac{\Delta y}{\Delta x}$

From a Table

1. Find the constant Rate of the x and y values.
2. Write the slope as $\frac{\Delta y}{\Delta x}$.

	+4	+4	+4	
x	−9	−5	−1	3
y	−2	0	2	4
	−2	−2	−2	

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

	+0	+0	+0	
x	5	5	5	5
y	−12	−9	−6	−3
	+3	+3	+3	

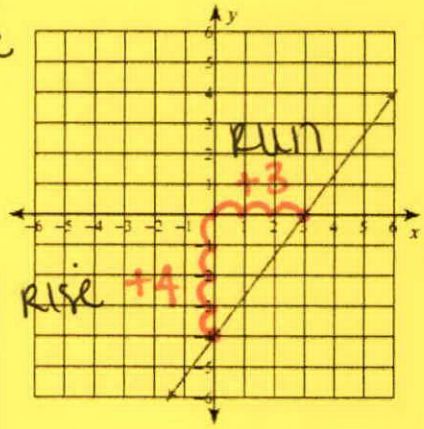
$\frac{\Delta y}{\Delta x} = \frac{3}{0} = \boxed{\text{UND}}$

From a Graph

1. Choose two points on the line.
2. Count the Rise then the Run.
3. Write the slope as $\frac{\text{Rise}}{\text{Run}}$.

positive line
positive slope

$\boxed{\frac{4}{3}}$



What is SLOPE?

Slope describes the steepness of a line.

change in y / change in x — Rise / Run

From an Equation

1. Solve the equation for y.
2. Slope is the Rate of Change, therefore it is next to the variable x.
3. The slope is the coefficient of x.

$y = mx + b$ (slope, y-intercept)

1. $y = \frac{1}{2}x + 4$ $\quad m = \frac{1}{2}$ $\quad b = 4$
2. $y = -3x - 2$ $\quad m = \frac{-3}{1}$ $\quad b = -2$
3. $y = \frac{3}{2}x - 1$ $\quad m = \frac{3}{2}$ $\quad b = -1$
4. $2(x + 8) + y = 4$

$2x + 16 + y = 4$
$-16 \quad -16$
$2x + y = -12$
$-2x \quad -2x$
$y = -2x - 12$

$m = \frac{-2}{1}$ $\quad b = -12$

From Two Points

1. Label the x and y coordinates.
2. Find the Change of y and the Change of x by using the Slope formula (subtracting)
4. Write the slope as change in y / change in x. $\frac{\Delta y}{\Delta x}$

$\frac{y_2 - y_1}{x_2 - x_1}$ OR $\frac{y_1 - y_2}{x_1 - x_2}$

1. $(-4,7)$ and $(-6,4)$ (x_1, y_1; x_2, y_2)

$\frac{4-7}{-6-(-4)} = \frac{-3}{-6+4} = \frac{-3}{-2} = \boxed{\frac{3}{2}}$

2. $(3,-15)$ and $(-11,-15)$ (x_1, y_1; x_2, y_2)

$\frac{-15-(-15)}{3-(-11)} = \frac{-15+15}{3+11} = \frac{0}{14} = \boxed{0}$

horizontal line

3. $(4,3)$ and $(4,-2)$ (x_1, y_1; x_2, y_2)

$\frac{-2-3}{4-4} = \frac{-5}{0} = \boxed{\text{UND}}$

vertical line