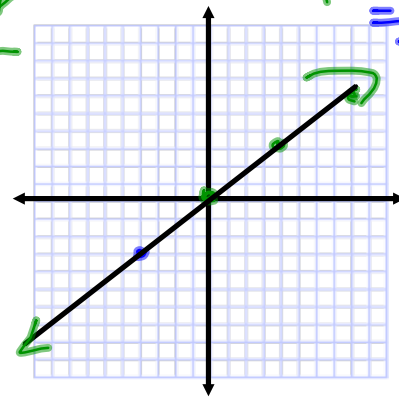# 2.3 SLOPE

$$m = \frac{+\uparrow - \downarrow}{+\rightarrow - \leftarrow}$$

$m = \frac{3}{4}$ $b = 0$

$= \frac{-3}{-4}$

What is **SLOPE**? Steep a line is
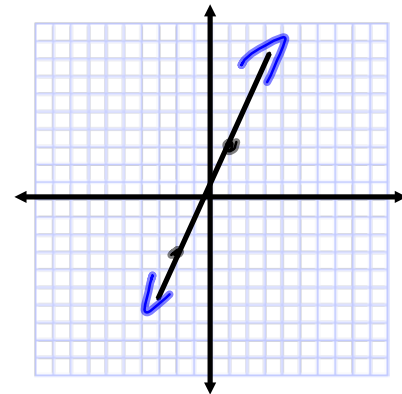
$$m = \frac{rise}{run} = \frac{change\ in\ y}{change\ in\ x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Rate of Change

x, y_1

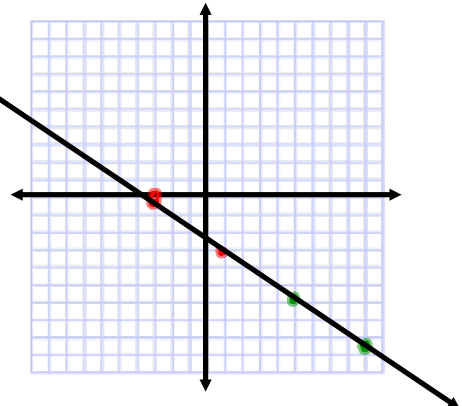1. Find the slope of a line that passes through (1,3) & (-2,-3). Then graph.

$x_2\ y_2$

$$m = \frac{-3-3}{-2-1} = \frac{-6}{-3} = \boxed{2} \text{ or } \frac{2}{1}$$

2. Graph the line that passes through (1,-3) with slope -3/4.

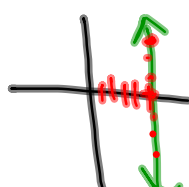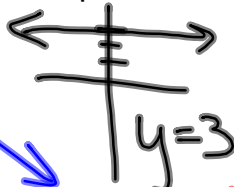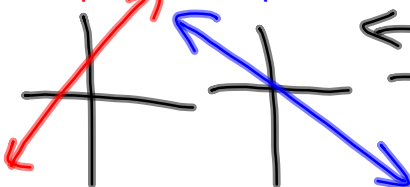$$m = \frac{-3\downarrow}{4\rightarrow} \text{ or } \frac{3\uparrow}{-4\leftarrow}$$

+ slope   - slope   slope = 0   slope is undefined

$y = 3$

(x can be any #) $x = 5$ (y is can be anything)

Parallel lines – Slopes
– they   are
never   equal
intersect

– different y
intercepts
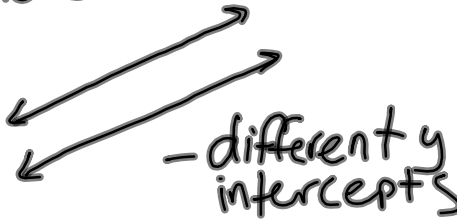
Perpendicular Lines – opposite reciprical
slopes
90                    $\frac{2}{3} \rightarrow \frac{-3}{2}$
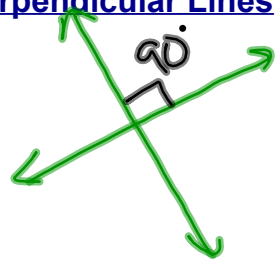
3. Graph the line through (1, -2) parallel to x - y = - 2.

$M = \frac{1}{1}$

$x - y = -2$
$-y = -x - 2$
$y = x + 2$

$\boxed{m = 1}$
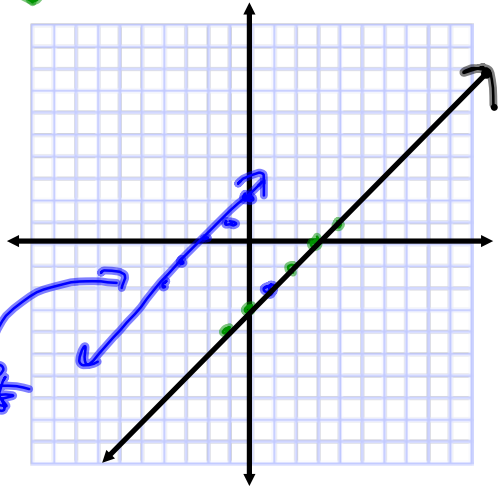
$y = \frac{2}{3}x - 1$ *

4. Graph the line through (2, 1) perpendicular to 2x - 3y = 3

$2x - 3y = 3$
$-2x \quad -2x$
$\overline{-3y = -2x + 3}$
$\overline{-3} \quad \overline{-3} \quad \overline{-3}$

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

$m = \frac{2}{3}$

$\rightarrow \frac{-3}{2} \downarrow$
$\downarrow$