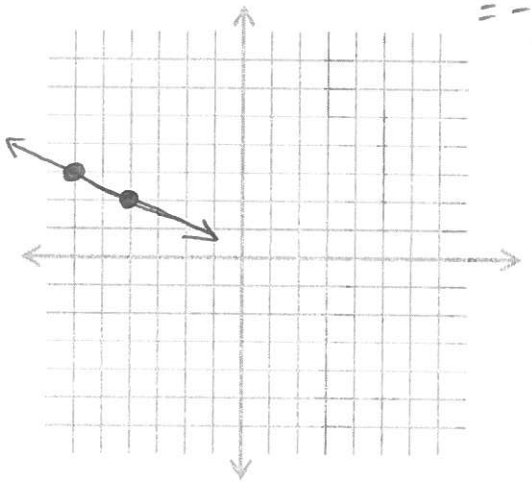
Exercises: Sols

Find the slope and graph the line for the following:

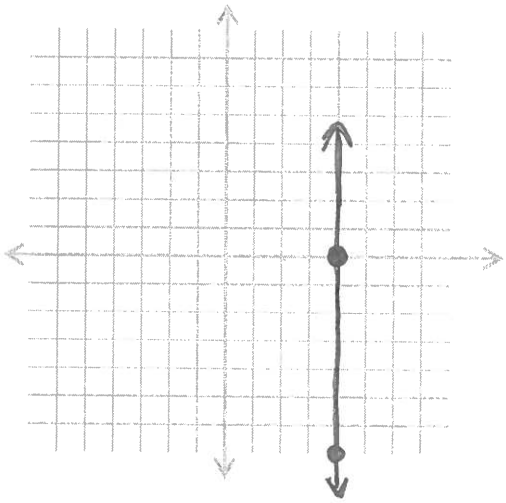
1. $(-4,2)\&(-6,3)$

$m = \frac{3-2}{-6--4} = \frac{1}{-2} = -\frac{1}{2}$



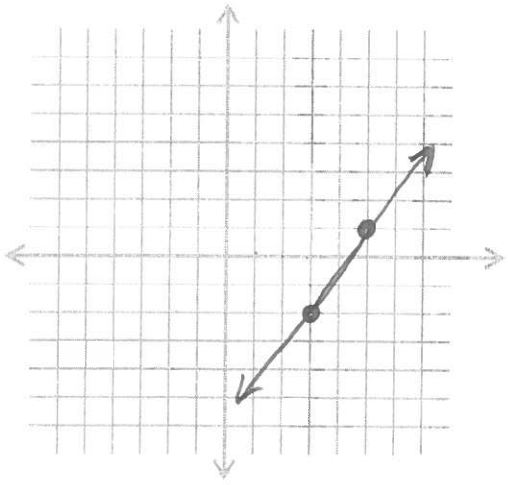
2. $(4,0)\&(4,-7)$

$m = \frac{-7-0}{4-4}$ undefined!



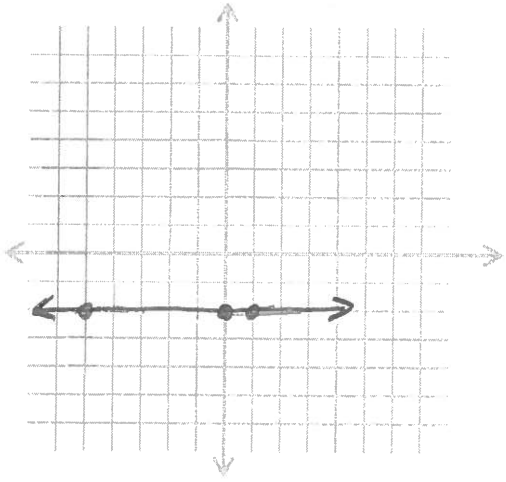
3. $(3,-2)\&(5,1)$

$m = \frac{1--2}{5-3} = \frac{3}{2}$



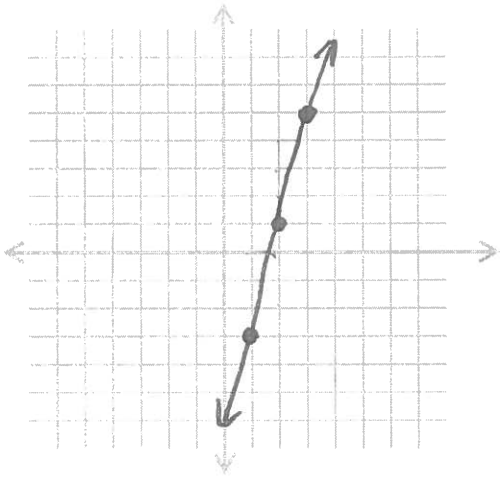
4. $(1,-2)\&(-5,-2)$

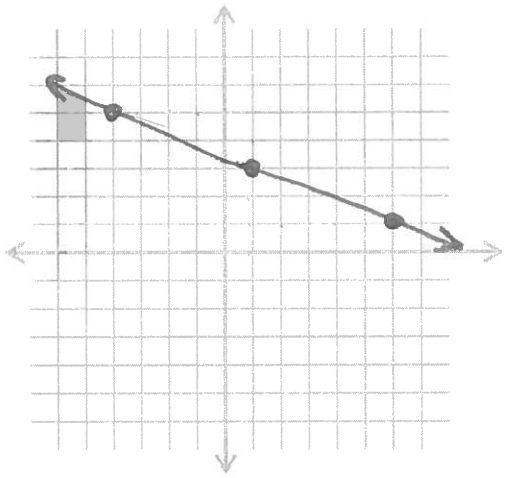
$m = \frac{-2--2}{-5-1} = 0$



Graph the following:

5. $P = (2,1); m = 4$ 6. $P = (1,3); m = -\frac{2}{5}$





Find an equation of the line in standard form for the following:

7. Slope $= \frac{1}{2}$; passing through (3,1).

$y - y_1 = m(x - x_1)$

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

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

$-\frac{1}{2}x + y + \frac{1}{2} = 0$

8. Having $x$- intercept $= -4$ and $y$-intercept $= 4$.

$(-4, 0)$ $(0, 4)$

$$m = \frac{4-0}{0--4} = 1$$

$$y = mx + b$$

$$y = 1x + 4$$

$$\boxed{-x + y - 4 = 0}$$

9. Containing the points $(2,5)$&$(-1,4)$.

$$m = \frac{5-4}{2--1} = \frac{1}{3}$$

$$y - 4 = \frac{1}{3}(x--1) \quad \text{OR} \quad y - 5 = \frac{1}{3}(x-2)$$

$$y - 4 = \frac{1}{3}x + \frac{1}{3} \qquad y - 5 = \frac{1}{3}x - \frac{2}{3}$$

$$\boxed{-\frac{1}{3}x + y - \frac{13}{3} = 0} \qquad \boxed{-\frac{1}{3}x + y - \frac{13}{3} = 0}$$

10. Containing the points $(4, -3)$&$(1,1)$.

$$m = \frac{1--3}{1-4} = \frac{4}{-3} = -\frac{4}{3}$$

$$y - 1 = -\frac{4}{3}(x-1) \quad \text{OR} \quad y--3 = -\frac{4}{3}(x-4)$$

$$y - 1 = -\frac{4}{3}x + \frac{4}{3} \qquad y + 3 = -\frac{4}{3}x + \frac{16}{3}$$

$$\boxed{\frac{4}{3}x + y - \frac{7}{3} = 0} \qquad \boxed{\frac{4}{3}x + y - \frac{7}{3} = 0}$$

Find the slope and $y$-intercept for the following and graph.

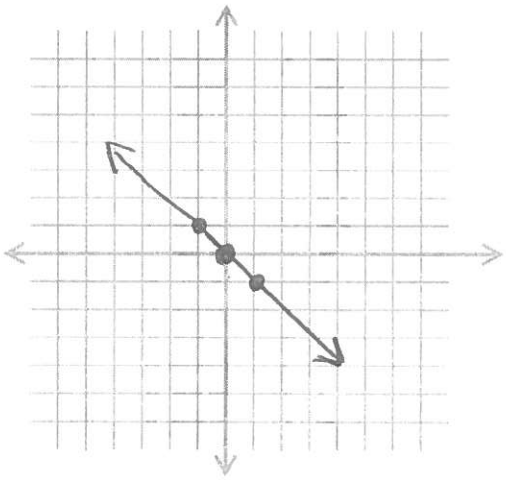
11. $3x + 3y = 0$

$-3x \qquad -3x$

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

$y = -x$

$m = -1 \quad b = 0$



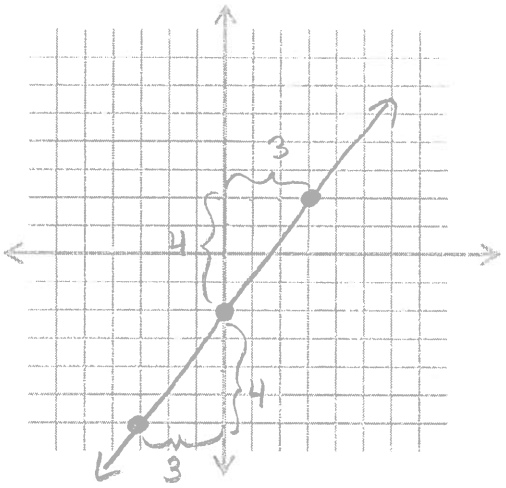
12. $4x - 3y = 6$

$-4x \qquad -4x$

$\frac{-3y}{-3} = \frac{-4x}{-3} + \frac{6}{-3}$

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

$m = 4/3 \quad b = -2$




13. Find an equation for the $y$ -axis.

The y-axis corresponds to the coordinates when x is 0. It is a vertical line, so an equation is $\boxed{x = 0}$