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

4.6 Direct Variation

* Think origin

$y = mx + b$ becomes $y = ax$ (or $y = mx$)

What happened to the b? Oh! $b = 0$ ... goes thru origin

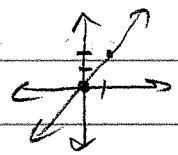
m? Use 'a' ... like slope

Called constant of variation

Direct Variation or Not? ($y = ax$)

1) $y = 2x$ 2) $-x + y = 4$ 3) $2x - 3y = 0$

Yup!



$a = 2$

$y = 4 - x$

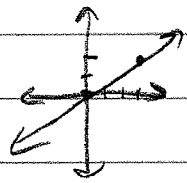
$b = 4$, not 0

Nope!

$-3y = -2x$

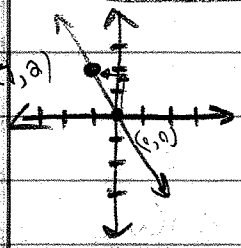
$y = \frac{2}{3}x$

Yup!



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

Write the Equation



$x = -1$
$y = 2$

* Remember, start from origin (0,0).

Go up 2 ; left 1 or $\frac{2}{-1} = -2$

So $y = ax$ becomes $y = -2x$

Find x when $y = 30$.

$30 = -2x$

$\frac{30}{-2} = \frac{-2x}{-2}$

$-15 = x$

$m = \frac{y_1 - y_2}{x_1 - x_2}$ $\frac{2 - 0}{0 - 1} = -2$

p256: 3-6, 9-17 odd, 10, 24-26, 31, 40-42