Mathematics 10D

1.0 – Writing Equations

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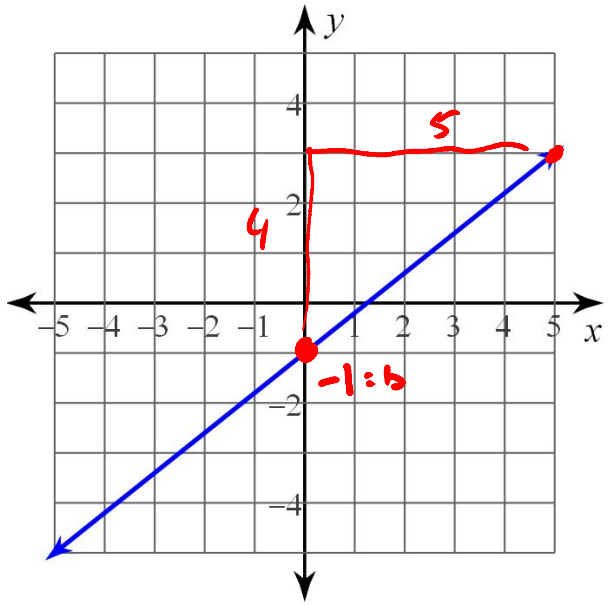
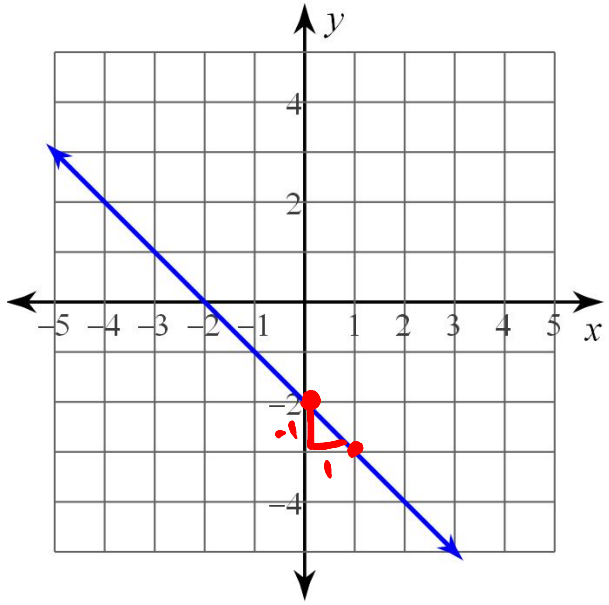
Writing Equations From a Graph



1. Slope
2. y-int.

$y = mx + b$

$m = \frac{4}{5}, b = -1 \quad \therefore \quad y = \frac{4}{5}x - 1$

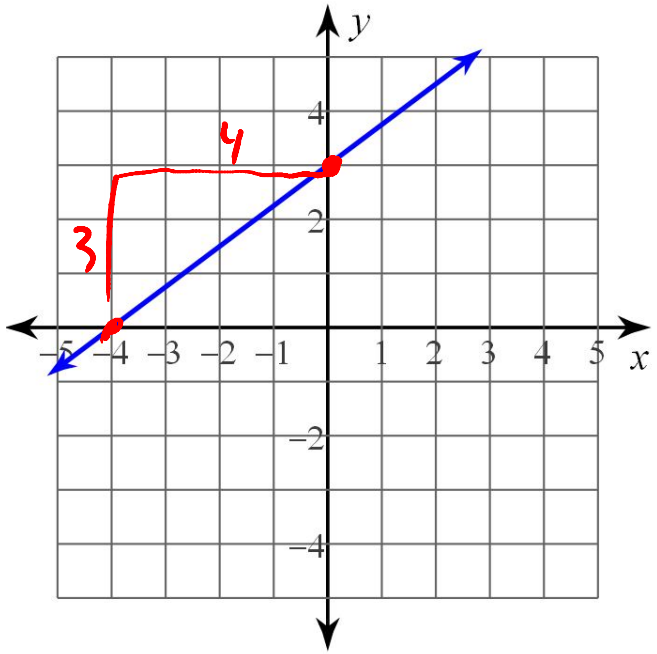


$b = -2$

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

$y = -1x - 2$

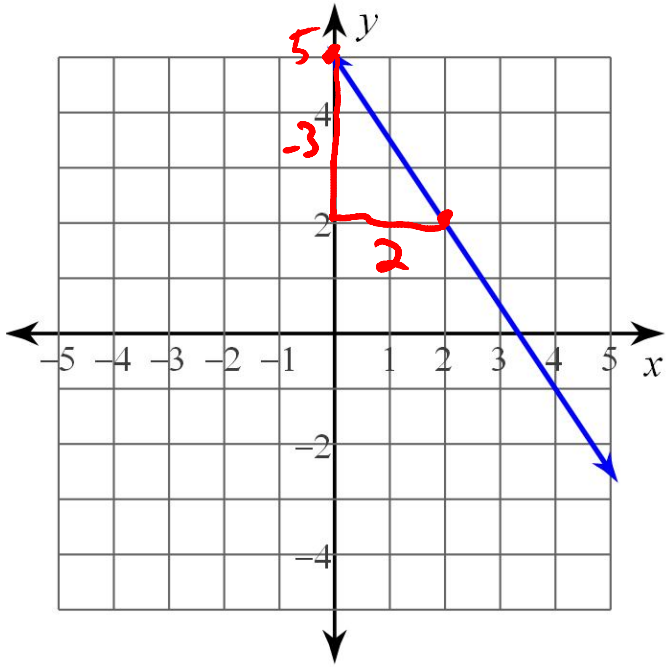
$y = -x - 2$



$b = 3$

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

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



$b = 5$

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

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

Given two points, find the equation of the line…

through: $(-1, 4)$ and $(-2, 3)$

Find slope:

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

$y = 1x + b$

$3 = 1(-2) + b$

$3 = -2 + b$

$5 = b$

$y = 1x + 5$

through: $(3, -4)$ and $(0, 5)$

$$m = \frac{5-(-4)}{0-3} = \frac{9}{-3} = -3$$

$y = -3x + b$

$5 = -3(0) + b$

$5 = b$

$\therefore y = -3x + 5$

through: $(-3, -2)$ and $(4, -4)$

$$m = \frac{-4 - -2}{4 - -3} = \frac{-2}{7}$$

$$y = \frac{-2}{7}x + b$$

$$-2 = \frac{-2}{7}\left(\frac{-3}{1}\right) + b$$

$$-2 \overset{-b}{=} \frac{6}{7} \overset{-b}{+} b$$

$$\frac{-14}{7} - \frac{6}{7} = b$$

$$\frac{-20}{7} = b$$

$$\therefore y = \frac{-2}{7}x - \frac{20}{7}$$