8.4 Writing Equations

using given information to write equations

$y = mx + b$

Multiple levels of difficulty

1. $m = 5$ $int = 3$

$y = mx + b$

$y = 5x + 3$

$m = -\frac{2}{3}$ $int = -\frac{7}{9}$

$y = -\frac{2}{3}x - \frac{7}{9}$

Slope and point

$m = -2$ $(-1, 3)$

Find the intercept

$3 = -2(-1) + b$

$3 = 2 + b$

$-2 \quad -2$

$1 = b$

$y = -2x + 1$

$m = -\frac{3}{2}$ $(-4, -2)$

$-2 = -\frac{3}{2}(-4) + b$

$-2 = 6 + b$

$-6 \quad -6$

$-8 = b$

$y = -\frac{3}{2}x - 8$

Can also use point-slope form

$m = -2$ $(\overset{x_1}{-1}, \overset{y_1}{3})$

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

$y - 3 = -2(x + 1)$

$y - 3 = -2x - 2$

$+3 \quad +3$

$y = -2x + 1$

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

Two points

$(-2, 3)$ $(6, -5)$

1. find $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{-5 - 3}{6 + 2} = \frac{-8}{8} = -1$

2. use point, slope

$3 = -1(-2) + b$

$3 = 2 + b$

$-2 \quad -2$

$b = 1$

$y = -x + 1$

$-5 = (-1)(6) + b$

$-5 = -6 + b$

$+6 \quad +6$

$1 = b$

$y = -x + 1$

$(-6, 3)$ $(4, -2)$

$m = \frac{-2 - 3}{4 + 6} = \frac{-5}{10} = -\frac{1}{2}$

$3 = -\frac{1}{2}(-6) + b$

$3 = 3 + b$

$-3 \quad -3$

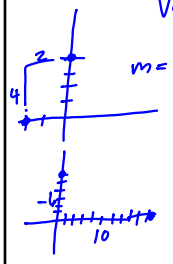
$0 = b$

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

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

Writing by the intercepts $\left(-\frac{v}{h}\right)$

Vertical int = 4 horizontal int = -2



$m = \frac{4}{2} = 2$ $\quad y = 2x + 4$

Vertical int 6 horizontal int = 10

$\frac{-6}{10} = \frac{-3}{5}$ $\quad y = -\frac{3}{5}x + 6$