Math 9

Slope Intercept Form (y=mx+b)

State the slope and y-intercept.

Slope ↑ y-int.

1) $y = \frac{9}{2}x - 5$

$m = \frac{9}{2}$

y-int = −5

2) $12x = 15y - 45$

+45 +45

$\frac{12x}{15} + \frac{45}{15} = \frac{15y}{15}$

$y = \frac{4}{5}x + 3 = y$

$m = \frac{4}{5}$

y-int = 3

Given the coordinates, calculate the slope and the y-intercept, then state the equation.

3) through: $(-2, -5)$ and $(2, 3)$

① slope: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - -5}{2 - -2} = \frac{8}{4} = 2$ m

② y-int: $y = mx + b$ use $(\overset{x}{2}, \overset{y}{3})$

$3 = 2(2) + b$

$\overset{-4}{3} = \overset{-4}{4} + b$

$-1 = b$

③ ∴ $y = 2x - 1$

4) through: $(-1, 2)$ and $(4, -5)$

① slope: $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - 2}{4 - -1} = \frac{-7}{5}$

② y-int: $y = mx + b$

$2 = \frac{-7}{5}\left(\frac{-1}{1}\right) + b$

$2 = \frac{7}{5} + b$

$\frac{2}{1} - \frac{7}{5} = b$

$\frac{10}{5} - \frac{7}{5} = b$

$\frac{3}{5} = b$

③ ∴ $y = \frac{-7}{5}x + \frac{3}{5}$

Write the equation in Slope-Intercept Form then Standard Form. → = 0 and x is positive and no fractions.

5) Slope = −5, y-intercept = 3 (m, b)

$y = -5x + 3$ (+5x, −3)

$5x + y - 3 = 0$

6) Slope = $\frac{2}{3}$, y-intercept = −3

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

$3(0 = \frac{2}{3}x - y - 3)$

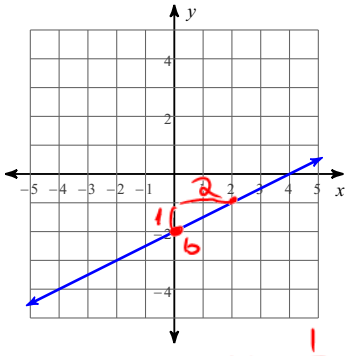
$0 = 2x - 3y - 9$

$2x - 3y - 9 = 0$

$y = mx + b$

Write the equation in Slope-Intercept Form.

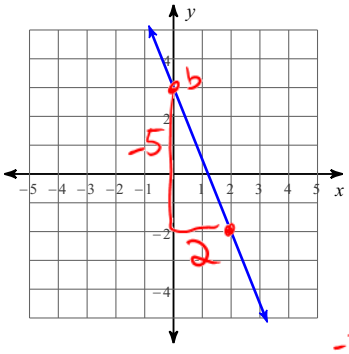
7)



$b = -2 \quad m = \frac{1}{2}$

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

8)



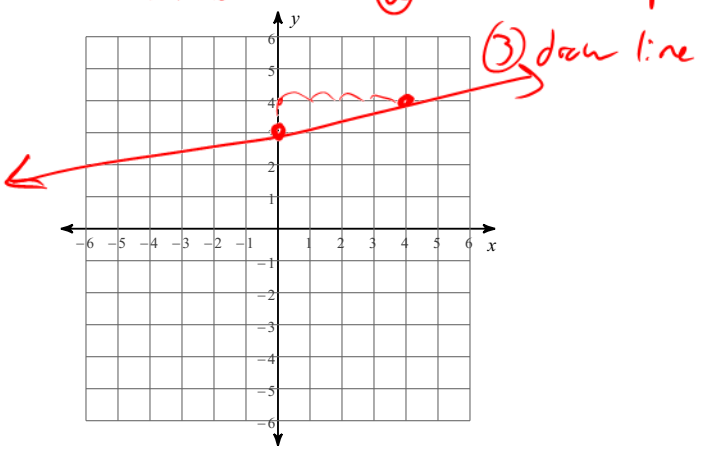
$b = 3 \quad m = \frac{-5}{2}$

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

Sketch the graph of each line.

9) $y = \frac{1}{4}x + 3$ (rise 1, run 4; b)

① graph y-int
② use the slope.
③ draw line



10) $y = -\frac{3}{4}x + 5$ (rise −3, run 4; b)