4.1 *Write Linear Equations in Slope-Intercept Form*

$y = mx + b$

1. Write an equation of the line with a slope of -4 and a y-intercept of 7.

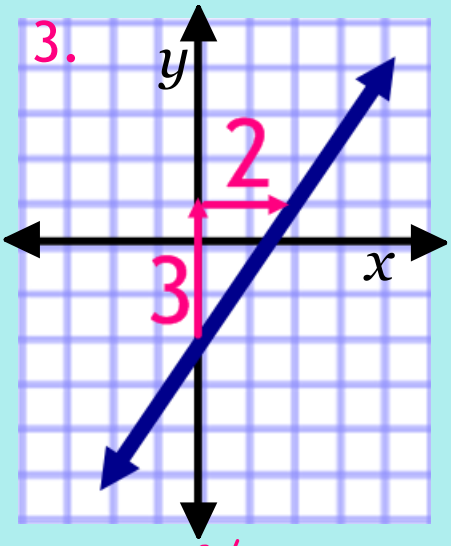
$y = -4x + 7$

2. Write an equation of the line with a slope of $\frac{2}{3}$ and a y-intercept of -8.

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

Write an equation of the line in each graph.

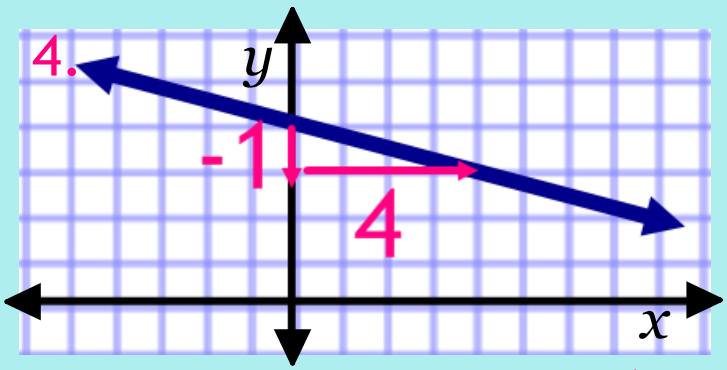
3.



$m = 3/2$ y-int $= -2$

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

4.

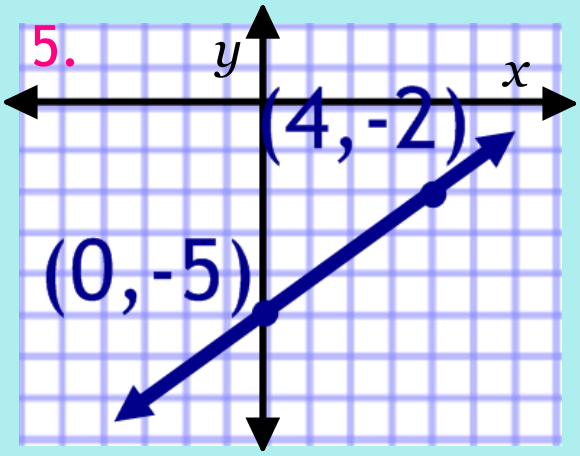


$m = -\frac{1}{4}$ y-int $= 4$

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

Write an equation of the line in each graph.

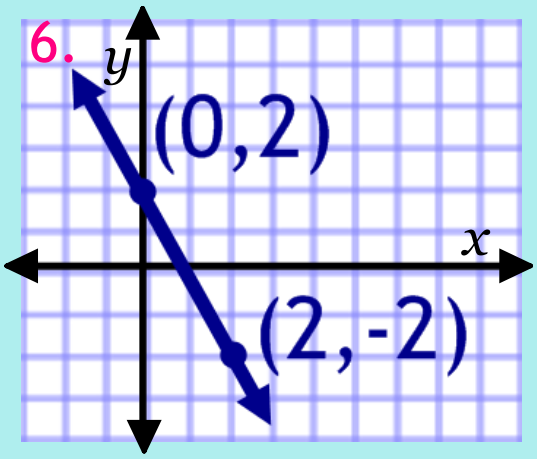
5.



$m = \frac{3}{4}$ y-int $= -5$

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

6.



$m = -2$ y-int $= 2$

$y = -2x + 2$

7. Write an equation of the line that passes through (2,-7) and (0,-5). y-int

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - -7}{0 - 2} = \frac{2}{-2} = -1$$

$y = -x - 5$

8. Write an equation of the line that passes through (0,-1) and (5,-5).

(0,-1) y-int

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 + 1}{5 - 0} = \frac{-4}{5}$$

$$y = -\frac{4}{5}x - 1$$

9. Write an equation for the linear function f with the values $f(0) = 5$ and $f(4) = 17$.

y-int (0,5) (4,17)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{17 - 5}{4 - 0} = \frac{12}{4} = 3$$

$$y = 3x + 5$$

10. Write an equation for the linear function f with the values $f(-3) = -2$ and $f(0) = 5$.

$(-3,-2)$ y-int $(0,5)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5+2}{0+3} = \frac{7}{3}$$

$$y = \frac{7}{3}x + 5$$

11. A recording studio charges musicians an initial fee of $75 and charges $40 per hour for studio time.

y-int (starting point) slope (rate of change)

a) Write an equation that gives the total cost c of an album as a function of studio time. t

~~$y = 40x + 75$~~

$c(t) = 40t + 75$

b) Find the total cost of recording an album that takes 10 hours of studio time.

$c(10) = 40(10) + 75$

$c(10) = 400 + 75$

$c(10) = \$475$