Principles of Algebra Name/Date Clee/Today

WS 8A.2 – More Writing Equations of Lines

#1-5 – Write an equation in slope-intercept form for the line that contains the two points.

1. (0 , 6) and (5 , 0)

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(0)-(6)}{(5)-(0)} = \frac{-6}{5}$

$m = -\frac{6}{5}$

② Find y-intercept:

(0,6) has an x-coordinate of zero. It is on the y-axis and is the y-intercept.

$b = 6$

③ Write equation:

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

2. (1 , 7) and (5 , 3)

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(3)-(7)}{(5)-(1)} = \frac{-4}{4}$

$m = -1$

② Find y-intercept:

$y = mx + b$

$(3) = (-1)(5) + b$

$3 = -5 + b$

$8 = b$

③ Write equation:

$y = -x + 8$

3. (−5 , 0) and (8 , −4)

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(-4)-(0)}{(8)-(-5)} = \frac{-4}{13}$

$m = -\frac{4}{13}$

② Find y-intercept:

$y = mx + b$

$(0) = (-\frac{4}{13})(-5) + b$

$0 = \frac{20}{13} + b$

$-\frac{20}{13} = b$

③ Write equation:

$y = -\frac{4}{13}x - \frac{20}{13}$

4. (−4 , −3) and (−2 , −6)

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(-6)-(-3)}{(-2)-(-4)} = \frac{-3}{2}$

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

② Find y-intercept:

$y = mx + b$

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

$-6 = 3 + b$

$-9 = b$

③ Write equation:

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

5. $(-1, 1)$ and $(5, -7)$

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(-7) - (1)}{(5) - (-1)} = \frac{-6}{6}$

$m = -1$

② Find y-intercept:

$y = mx + b$

$(-7) = (-1)(5) + b$

$-7 = -5 + b$

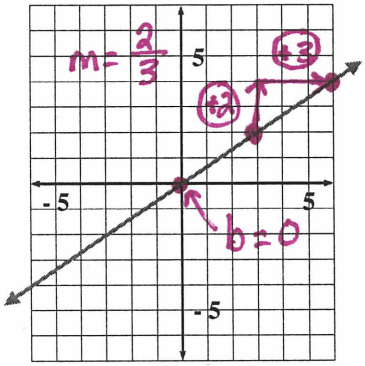
$-2 = b$

③ Write equation:

$y = -x - 2$

#6-8 – Write an equation in slope-intercept form for each graphed line.

6.

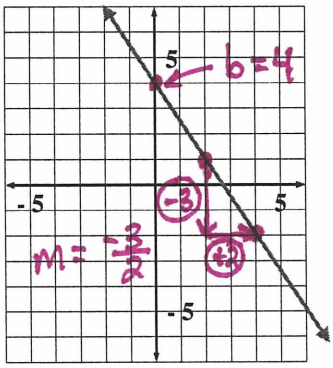


① Find slope: $m = \frac{2}{3}$

② Find y-intercept: $b = 0$

③ Write equation: $y = \frac{2}{3}x$

7.

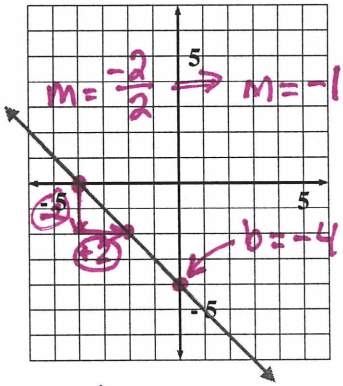


① Find slope: $m = -\frac{3}{2}$

② Find y-intercept: $b = 4$

③ Write equation: $y = -\frac{3}{2}x + 4$

8.



① Find slope: $m = -1$

② Find y-intercept: $b = -4$

③ Write equation: $y = -x - 4$

#9-10 – Write an equation in slope-intercept form for the line that contains the two points.

9. $(-4, 1)$ and $(6, 1)$

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(1) - (1)}{(6) - (-4)} = \frac{0}{10}$

$m = 0$

If a line has slope 0, then it is a horizontal line. The equation of a horizontal line is $y =$ constant. The constant is the value of the y-coordinates on the line.

$(-4, 1)$ and $(6, 1)$ $\quad y = 1$

10. $(5, -3)$ and $(5, 1)$

① Find slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

$m = \frac{(1) - (-3)}{(5) - (5)} = \frac{4}{0}$

m is undefined

If a line has undefined slope, then it is a vertical line. The equation of a vertical line is $x =$ constant. The constant is the value of the x-coordinates on the line.

$(5, -3)$ and $(5, 1)$ $\quad x = 5$