Day 5 - Worksheet - Equations of Lines Practice   Date_____ Period____

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

$y = mx + b$

1) Slope = 3,   y-intercept = -2

      m b

$y = 3x - 2$

2) Slope = $\dfrac{7}{2}$,   y-intercept = 3

          m b

$y = \dfrac{7}{2}x + 3$

$y = mx + b$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

x y m

3) through: $(-5, 2)$,   slope = -1

$x = -5$ $2 = -1(-5) + b$

$y = 2$ $2 = 5 + b$

$m = -1$ $-3 = b$

$y = -x - 3$

x y m

4) through: $(4, 5)$,   slope = $\dfrac{7}{6}$

$5 = \dfrac{7}{6}(4) + b$

$5 = \dfrac{14}{3} + b$

$\dfrac{15}{3} - \dfrac{14}{3} = b$

$\dfrac{1}{3} = b$

$y = \dfrac{7}{6}x + \dfrac{1}{3}$

Write the slope-intercept form of the equation of the line through the given points.

$y = mx + b$

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

$m = \dfrac{2 - (-3)}{-2 - (-3)} = \dfrac{5}{1}$ $y = 5x + 12$

$x = -2$ $2 = 5(-2) + b$

$y = 2$ $2 = -10 + b$

           $12 = b$

6) through: $(-1, 3)$ and $(5, 4)$

$m = \dfrac{4 - 3}{5 - (-1)} = \dfrac{1}{6}$ $y = \dfrac{1}{6}x + \dfrac{19}{6}$

$x = 5$ $4 = \dfrac{1}{6}(5) + b$

$y = 4$ $4 = \dfrac{5}{6} + b$

     $\dfrac{24}{6} - \dfrac{5}{6} = b$ $b = \dfrac{19}{6}$

Write the slope-intercept form of the equation of the line described.

7) through: $(-1, -1)$, parallel to $y = 3x + 4$

$m = 3$

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

$y = -1$ $-1 = -3 + b$

       $2 = b$ $y = 3x + 2$

8) through: $(2, 3)$, parallel to $y = 3x + 4$

$m = 3$ $3 = 3(2) + b$

$x = 2$ $3 = 6 + b$

$y = 3$ $-6 \quad -6$

       $-3 = b$

$y = 3x - 3$

9) through: $(-3, 5)$, perp. to $y = \dfrac{3}{5}x - 1$

$m = -\dfrac{5}{3}$ $5 = -\dfrac{5}{3}(-3) + b$

$x = -3$ $5 = 5 + b$ $\boxed{y = -\dfrac{5}{3}x + 0}$

$y = 5$ $\boxed{0 = b}$

10) through: $(-3, -1)$, perp. to $y = -\dfrac{3}{2}x - 3$

$\boxed{m = \dfrac{2}{3}}$ $-1 = \dfrac{2}{3}(-3) + b$

$x = -3$ $-1 = -2 + b$ $\boxed{y = \dfrac{2}{3}x + 1}$

$y = -1$ $\boxed{1 = b}$

Write the point-slope form of the equation of the line through the given point with the given slope.

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

11) through: $(5, 0)$, slope $= \dfrac{1}{4}$

$y - 0 = \dfrac{1}{4}(x - 5)$

12) through: $(-4, 3)$, slope $= -\dfrac{1}{4}$

$y - 3 = -\dfrac{1}{4}(x + 4)$

Write the point-slope form of the equation of the line through the given points.

13) through: $(1, 3)$ and $(-1, 0)$

$m = \dfrac{0 - 3}{-1 - 1} = \dfrac{-3}{2}$

$\boxed{y - 3 = -\dfrac{3}{2}(x - 1)}$

OR

$\boxed{y - 0 = -\dfrac{3}{2}(x + 1)}$

14) through: $(-1, 5)$ and $(5, -2)$ $m = \dfrac{-2 - 5}{5 - (-1)} = \dfrac{-7}{6}$

$\boxed{y - 5 = -\dfrac{7}{6}(x + 1)}$

OR

$\boxed{y + 2 = -\dfrac{7}{6}(x - 5)}$

Write the point-slope form of the equation of the line described.

15) through: $(-4, 2)$, parallel to $y = -\dfrac{7}{4}x + 4$

$m = -\dfrac{7}{4}$

$\boxed{y - 2 = -\dfrac{7}{4}(x + 4)}$

16) through: $(-3, 1)$, parallel to $y = -2x + 3$

$m = -2$

$\boxed{y - 1 = -2(x + 3)}$

17) through: $(-3, -5)$, perp. to $y = -\dfrac{3}{4}x - 4$

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

$\boxed{y + 5 = \dfrac{4}{3}(x + 3)}$

18) through: $(4, -1)$, perp. to $y = -4x$

$m = \dfrac{1}{4}$

$\boxed{y + 1 = \dfrac{1}{4}(x - 4)}$