Geometry & Applications

Name ANSWER KEY

Extra Practice-Equations of Lines

Date_____ Period____

Determine the equation of each line given the following information.(Equations must be expressed in GENERAL form)

1) Slope $= \frac{9}{5}$, y-intercept $= -5$

$m = \frac{9}{5}$, $b = -5$

$y = mx + b$

$y = \frac{9}{5}x - 5$

$5y = 9x - 25$

$0 = 9x - 5y - 25$

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

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

$y = mx + b$

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

$3y = -2x - 9$

$2x + 3y + 9 = 0$

3) through: $(2, -5)$, slope $= 0$

x_1, y_1

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

$y + 5 = 0(x - 2)$

$y + 5 = 0$

4) through: $(2, 3)$, slope $= -\frac{2}{5}$

x_1, y_1

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

$y - 3 = -\frac{2}{5}(x - 2)$

$y - 3 = -\frac{2}{5}x + \frac{4}{5}$

$5y - 15 = -2x + 4$

$2x + 5y - 15 - 4 = 0$

$2x + 5y - 19 = 0$

5) through: $(0, -5)$ and $(-4, -1)$

$x_1\ y_1 \qquad x_2\ y_2$

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

$= \frac{-1+5}{-4-0}$

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

$= -1$

pt. $(0, -5)$

$x_1\ y_1$

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

$y + 5 = -1(x - 0)$

$y + 5 = -1x$

$1x + y + 5 = 0$

6) through: $(0, -4)$ and $(5, -3)$

$x_1\ y_1 \qquad x_2\ y_2$

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

$= \frac{-3+4}{5-0}$

$= \frac{1}{5}$

pt. $(0, -4)$

$x_1\ y_1$

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

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

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

$5y + 20 = 1x$

$0 = 1x - 5y - 20$

7) through: $(2, 3)$, parallel to $y = \frac{5}{2}x + 1$

pt. $(2,3)$ $\quad m = \frac{5}{2}$

$x_1 \; y_1$ $\quad m_{\parallel} = \frac{5}{2}$

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

$y - 3 = \frac{5}{2}(x - 2)$

$y - 3 = \frac{5}{2}x - \frac{10}{2}$

$2y - 6 = 5x - 10$

$0 = 5x - 2y - 10 + 6$

$0 = 5x - 2y - 4$

8) through: $(-2, -1)$, parallel to $y = -\frac{1}{2}x + 1$

pt. $(-2,-1)$ $\quad m = -\frac{1}{2}$

$x_1 \; y_1$ $\quad m_{\parallel} = -\frac{1}{2}$

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

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

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

$2y + 2 = -1x - 2$

$1x + 2y + 2 + 2 = 0$

$1x + 2y + 4 = 0$

9) through: $(-4, -5)$, perp. to $y = -x + 1$

pt. $(-4,-5)$ $\quad m = -1$

$x_1 y_1$ $\quad m_\perp = \frac{1}{1}$ or 1

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

$y + 5 = 1(x + 4)$

$y + 5 = 1x + 4$

$0 = 1x - y + 4 - 5$

$0 = 1x - y - 1$

10) through: $(-2, 1)$, perp. to $y = 2x + 1$

pt. $(-2,1)$ $\quad m = 2$

$x_1 y_1$ $\quad m_\perp = -\frac{1}{2}$

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

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

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

$2y - 2 = -1x - 2$

$1x + 2y - 2 + 2 = 0$

$1x + 2y = 0$