

Homework 11.3

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

1) through: $(3, 1)$, slope = 1

$$\begin{aligned}y - 1 &= 1(x - 3) \\y - 1 &= x - 3 \\+1 &\quad +1 \\ \hline y &= x - 2\end{aligned}$$

2) through: $(3, 4)$, slope = 8

$$\begin{aligned}y - 4 &= 8(x - 3) \\y - 4 &= 8x - 24 \\+4 &\quad +4 \\ \hline y &= 8x - 20\end{aligned}$$

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

$$\begin{aligned}y + 2 &= -2(x - 3) \\y + 2 &= -2x + 6 \\-2 &\quad -2 \\ \hline y &= -2x + 4\end{aligned}$$

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

4) through: $(4, -2)$ and $(5, -3)$

$$m = \frac{-2 + 3}{4 - 5} = \frac{1}{-1} = -1 \quad y = -x + 2$$

$$\begin{aligned}y + 2 &= -1(x - 4) \\y + 2 &= -x + 4 \\-2 &\quad -2 \\ \hline y &= -x + 2\end{aligned}$$

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

$$m = \frac{-4 - 0}{-3 + 5} = \frac{-4}{2} = -2 \quad y = -2x - 10$$

$$\begin{aligned}y + 4 &= -2(x + 3) \\y + 4 &= -2x - 6 \\-4 &\quad -4 \\ \hline y &= -2x - 10\end{aligned}$$

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

$$\begin{aligned}m &= \frac{-5 + 2}{-4 + 5} = \frac{-3}{1} \\y + 2 &= -3(x + 5) \\y + 2 &= -3x - 15 \\-2 &\quad -2 \\ \hline y &= -3x - 17\end{aligned}$$

Solve each equation.

7) $-6.5(p + 5.6) - 7.8p = -90.74$

$$-6.5p - 36.4 - 7.8p = -90.74$$

$$\begin{aligned}-14.3p - 36.4 &= -90.74 \\+36.4 &\quad +36.4 \\ \hline -14.3p &= -54.34\end{aligned}$$

$$\begin{aligned}\frac{-14.3p}{-14.3} &= \frac{-54.34}{-14.3} \\p &= 3.8\end{aligned}$$

8) $-5.1(6k + 7.7) + 6.2k = 119.33$

$$-30.6k - 39.27 + 6.2k = 119.33$$

$$-24.4k - 39.27 = 119.33$$

$$\begin{aligned}+39.27 &\quad +39.27 \\ \hline -24.4k &= 158.6\end{aligned}$$

$$\begin{aligned}\frac{-24.4k}{-24.4} &= \frac{158.6}{-24.4} \\k &= -6.5\end{aligned}$$

Answers to Homework 11.3

1) $y = x - 2$
5) $y = -3x - 17$

2) $y = 8x - 20$
6) $y = -2x - 10$

3) $y = -2x + 4$
7) $\{3.8\}$

4) $y = -x + 2$
8) $\{-6.5\}$