

Geometry: Section 3-8 Warm-up/notes

Find the slope:

1. A(4,6) B(-8, 12)	2. C(-9,14) D(-2, -7)
3. E(3,10), F(3, 4)	4. G(5, 13) H(-4, 13)
Slope-Intercept Formula: $y = mx + b$	Point-Slope Equation: $y - y_1 = m(x - x_1)$
Ex 1: Write the equation of a line with a slope of -3 and a y-intercept of 5	Ex 2: Write an equation in slope intercept form given a slope of -4 and P(-1,6)
$Y = -3x + 5$	$\begin{aligned} Y - 6 &= -4(x - -1) \\ Y - 6 &= -4(x + 1) \\ Y - 6 &= -4x - 4 \\ &\quad + \underline{6} \quad +6 \\ Y &= -4x + 2 \end{aligned}$
Ex 3 : Write an equation of line with a slope of $\frac{1}{2}$ with a y-intercept of 4 $Y = \frac{1}{2}x + 4$	Ex 4: Write an equation in slope intercept form given a slope of -3 and a point P(-2,8) $\begin{aligned} Y - 8 &= -3(x - -2) \\ Y - 8 &= -3(x + 2) \\ Y - 8 &= -3x - 6 \\ Y &= -3x + 2 \end{aligned}$

Example 5: Write an equation that is parallel to a given equation $y = 5x - 15$ yet going through $P(-1,3)$

$$Y - 3 = 5(x - - 1)$$

$$Y - 3 = 5x + 5$$

$$Y = 5x + 8$$

Ex 6: Write an equation that is perpendicular to this given equation $y = -\frac{1}{3}x + 7$ yet going through $P(3,4)$

$$Y - 4 = 3(x - 3)$$

$$Y - 4 = 3x - 9$$

$$Y = 3x - 5$$

Example 7: write an equation parallel to $y = \frac{1}{2}x + 10$ and going through $P(8,12)$

$$Y - 12 = \frac{1}{2}(x - 8)$$

$$Y - 12 = \frac{1}{2}x - 4$$

$$Y = \frac{1}{2}x + 8$$

Example 8: write an equation perpendicular to $y = \frac{1}{4}x + 12$ going through $P(2,-6)$

$$Y - - 6 = -4(x - 2)$$

$$Y + 6 = -4x + 8$$

$$Y = -4x + 2$$

Example 9

Write an equation parallel to

$$3x + 4y = 12$$

$$\begin{array}{r} -3x \qquad -3x \\ 4y = -3x + 12 \\ 4 \qquad 4 \qquad 4 \end{array}$$

$$4y = -3x + 12$$

$$4 \qquad 4 \qquad 4$$

$$Y = -\frac{3}{4}x + 3$$

$$\text{Parallel } y = -\frac{3}{4}x + 15$$

Example 10: write an

equation perpendicular to $y = 6x - 18$ at the y intercept.

$$Y = -\frac{1}{6}x - 18$$

Example 11: write an equation in slope intercept form that is perpendicular to $y = -\frac{1}{5}x - 4$ at the y-int.

$$Y = 5x - 4$$