

Q3: Write the equation in slope-intercept form of the line that is *parallel* to the graph of each equation and passes through the given point.

1. $y = 3x + 6$; (4, 7)

2. $y = x - 4$; (-2, 3)
 ↑
 $m = 1$

Parallel!

$y = 1(x - -2) + 3$

$y = 1(x + 2) + 3$

$y = 1x + 2 + 3$

$y = 1x + 5$

3. $y = \frac{1}{2}x + 5$; (4, -5)
 ↑
 $m = \frac{1}{2}$

Parallel!

$y = \frac{1}{2}(x - 4) + -5$

$y = \frac{1}{2}x - 2 + -5$

$y = \frac{1}{2}x - 7$

Solve for y!

4. $y + 2x = 4$; (-1, 2)
 $-2x \quad -2x$
 $y = -2x + 4$
 ↑
 $m = -2$

Parallel!

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

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

$y = -2x - 2 + 2$

$y = -2x$

Q4: Write the equation in slope-intercept form of the line that is *perpendicular* to the graph of each equation and passes through the given point.

1. $y = -5x + 1$; (2, -1)

2. $y = 2x - 3$; (-5, 3)
 \uparrow

$m = 2$ Perpendicular $\rightarrow m = -\frac{1}{2}$

$$y = -\frac{1}{2}(x - -5) + 3$$

$$y = -\frac{1}{2}(x + 5) + 3$$

$$y = -\frac{1}{2}x - 2.5 + 3$$

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

3. $y = -4x - 2$; (4, -4)
 \uparrow

$m = -4$

Perpendicular $\rightarrow m = \frac{1}{4}$

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

$$y = \frac{1}{4}x - 1 - 4$$

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

4. $7y + 4x = 3$; (-4, -7)
 $-4x -4x$

Solve

for y $\frac{7y}{7} = \frac{-4x + 3}{7}$

first! $y = \frac{-4}{7}x + \frac{3}{7}$

\uparrow

$m = -\frac{4}{7}$ Perpendicular... $m = \frac{7}{4}$

$$y = \frac{7}{4}(x - -4) + -7$$

$$y = \frac{7}{4}(x + 4) + -7$$

$$y = \frac{7}{4}x + 7 + -7$$

$$y = \frac{7}{4}x$$