

### Writing Equations of Lines Practice

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

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

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

$$y = -x + 5$$

2) through: (-1, 0), slope = 2

$$\begin{aligned}
 y &= 2x + b \\
 0 &= 2(-1) + b \\
 0 &= -2 + b \\
 +2 & \quad +2 \\
 \hline
 2 &= b
 \end{aligned}$$

$$y = 2x + 2$$

3) through: (-5, 4), slope =  $-\frac{8}{5}$

$$\begin{aligned}
 y &= -\frac{8}{5}x + b \\
 4 &= -\frac{8}{5}(-5) + b \\
 4 &= 8 + b \\
 -8 & \quad -8 \\
 \hline
 -4 &= b
 \end{aligned}$$

$$y = -\frac{8}{5}x - 4$$

4) through: (3, -1), slope = -2

$$\begin{aligned}
 y &= -2x + b \\
 -1 &= -2(3) + b \\
 -1 &= -6 + b \\
 +6 & \quad +6 \\
 \hline
 5 &= b
 \end{aligned}$$

$$y = -2x + 5$$

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

5) through:  $(-2, 5)$  and  $(-1, -4)$

+1  $\angle$   $\begin{matrix} -2, 5 \\ -1, -4 \end{matrix} \triangleright -9$   $\frac{\Delta y}{\Delta x} = \frac{-9}{1} = -9$

$$y = -9x + b$$

$$5 = -9(-2) + b$$

$$5 = 18 + b$$

$$\begin{array}{r} -18 \quad -18 \\ \hline -13 = b \end{array}$$

$$y = -9x - 13$$

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

$\nearrow$  y-int!  
-3  $\angle$   $\begin{matrix} 0, -5 \\ -3, -4 \end{matrix} \triangleright +1$   $\frac{\Delta y}{\Delta x} = -\frac{1}{3}$

$$y = -\frac{1}{3}x - 5$$

7) through:  $(0, 0)$  and  $(3, -4)$

$\nearrow$  y-int!

+3  $\angle$   $\begin{matrix} 0, 0 \\ 3, -4 \end{matrix} \triangleright -4$   $\frac{\Delta y}{\Delta x} = \frac{-4}{3}$

$$y = -\frac{4}{3}x$$

8) through:  $(2, -3)$  and  $(0, 2)$

$\nearrow$  y-int!

-2  $\angle$   $\begin{matrix} 2, -3 \\ 0, 2 \end{matrix} \triangleright +5$   $\frac{\Delta y}{\Delta x} = \frac{5}{-2} = -\frac{5}{2}$

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