

Complete the table.

Equation	Slope (m)	Parallel Slope (//)	Perpendicular Slope ($\perp$)
1) $y = 8x + 9$	8	8	$-1/8$
2) $y = \frac{-5}{6}x - 4$	$-5/6$	$-5/6$	$6/5$
3) $y = -4x + 13$	-4	-4	$1/4$
4) $y = \frac{7}{9}x - 4$	$7/9$	$7/9$	$-9/7$
5) $-3x + 6y = 9$ $+3x + 3x$ $6y = 3x + 9$ $y = \frac{1}{2}x + 3/2$	$1/2$	$1/2$	-2
6) $6x + 2y = 4$ $2y = -6x + 4$ $y = -3x + 2$	-3	-3	$1/3$
7) $4x - y = 8$ $-4x -4x$ $y = 4x - 8$	4	4	$-1/4$

Write the equation of a line parallel to the given line that goes through the given point.

8. $y = 8x + 3$
Containing (2, 4)

$$y - 4 = 8(x - 2)$$

$$y - 4 = 8x - 16$$

$$y = 8x - 12$$

9. $2x + y = 3$
Containing (3, 9)

$$y = -2x + 3$$

$$y - 9 = -2(x - 3)$$

$$y - 9 = -2x + 6$$

$$y = -2x + 15$$

Sec 6-5: Parallel and Perpendicular Lines

Two lines are **Parallel** if they:

- Have the **same slope**
- Different y-intercepts

Two lines are **Perpendicular** if they:

- Have **opposite reciprocal slopes**
- y-intercepts don't matter

Write an equation for the line that is perpendicular to the given line and that passes through the given point.

1. $(6, 4); y = 3x - 2$

$$m = -\frac{1}{3}$$
$$y - 4 = -\frac{1}{3}(x - 6)$$
$$y - 4 = -\frac{1}{3}x + 2$$
$$y = -\frac{1}{3}x + 6$$

2. $(-5, 5); y = -5x + 9$

$$m = \frac{1}{5}$$
$$y - 5 = \frac{1}{5}(x + 5)$$
$$y - 5 = \frac{1}{5}x + 1$$
$$y = \frac{1}{5}x + 6$$

3. $(-1, -4); y = \frac{1}{6}x + 1$

$$m = -6$$
$$y + 4 = -6(x + 1)$$
$$y + 4 = -6x - 6$$
$$y = -6x - 10$$

4. $(1, 1); y = -\frac{1}{4}x + 7$

$$m = 4$$
$$y - 1 = 4(x - 1)$$
$$y - 1 = 4x - 4$$
$$y = 4x - 3$$

5. $(12, -6); y = 4x + 1$

$$m = -\frac{1}{4}$$

$$y + b = -\frac{1}{4}(x - 12)$$

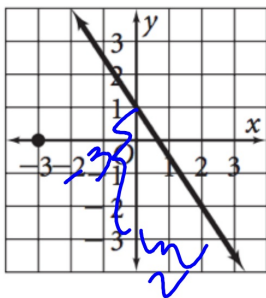
$$y + b = -\frac{1}{4}x + 3$$

$$y = -\frac{1}{4}x - 3$$

6. $(0, 3); y = -\frac{4}{3}x - 7$

$$m = \frac{3}{4} \quad y = \frac{3}{4}x + 3$$

7.



$$(-3, 0)$$

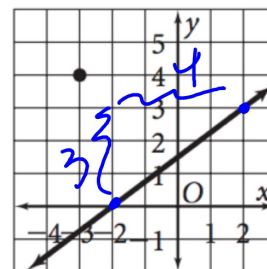
$$m = \frac{2}{3}$$

$$y - 0 = \frac{2}{3}(x + 3)$$

$$y - 0 = \frac{2}{3}x + 2$$

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

8.

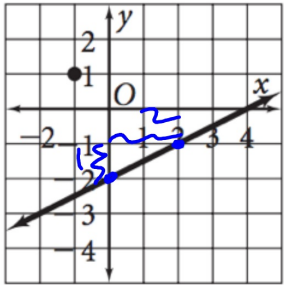


$$(-3, 4)$$

$$m = -\frac{4}{3}$$

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

9.



$$(-1, 1)$$

$$m = -2$$

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

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

$$y = -2x - 1$$

Write an equation for the line that is parallel to the given line and that passes through the given point.

1. $(3, 4); y = 2x - 7$ $m = 2$

$$y - 4 = 2(x - 3)$$

$$y - 4 = 2x - 6$$

$$y = 2x - 2$$

2. $(1, 3); y = -4x + 5$ $m = -4$

$$y - 3 = -4(x - 1)$$

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

$$y = -4x + 7$$

3. $(4, -1); y = x - 3$ $m = 1$

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

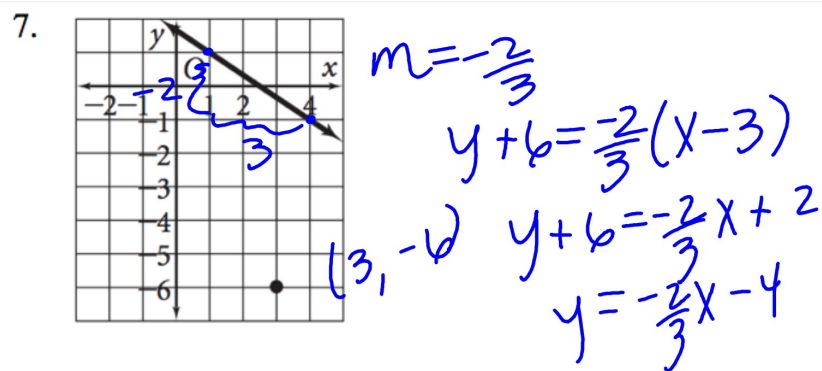
$$y + 1 = x - 4$$

$$y = x - 5$$

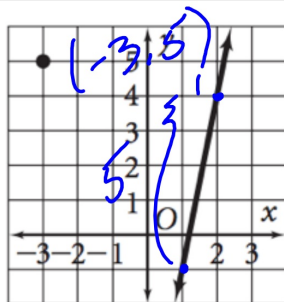
4. $(4, 0); y = \frac{3}{2}x + 9$
 $m = \frac{3}{2}$
 $y - 0 = \frac{3}{2}(x - 4)$
 $y - 0 = \frac{3}{2}x - 6$
 $y = \frac{3}{2}x - 6$

5. $(-8, -4); y = -\frac{3}{4}x + 5$
 $m = -\frac{3}{4}$
 $y + 4 = -\frac{3}{4}(x + 8)$
 $y + 4 = -\frac{3}{4}x - 6$
 $y = -\frac{3}{4}x - 10$

6. $(9, -7); -7x - 3y = 3$
 $\frac{+7x}{-3y} = \frac{-7x}{-3y} = \frac{-7x + 3}{-3y}$
 $-3y = -7x + 3$
 $y = \frac{7}{3}x - 1$
 $y + 7 = -\frac{7}{3}(x - 9)$
 $y + 7 = -\frac{7}{3}x + 21$
 $y = -\frac{7}{3}x + 14$

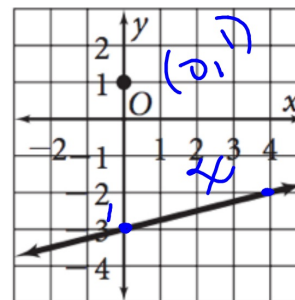


8.



$$\begin{aligned}
 m &= 5 \\
 y - 5 &= 5(x + 3) \\
 y - 5 &= 5x + 15 \\
 y &= 5x + 20
 \end{aligned}$$

9.



$$\begin{aligned}
 y - 1 &= \frac{1}{4}(x - 0) \\
 y - 1 &= \frac{1}{4}x - 0 \\
 y &= \frac{1}{4}x + 1
 \end{aligned}$$

QUIZ TOMORROW