

## Exercise 7

For the following exercises, determine whether the lines given by the equations below are parallel, perpendicular, or neither parallel nor perpendicular:

$$3y + x = 12$$

$$-y = 8x + 1$$

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### Solution

Solve the given equations for  $y$ .

$$\begin{cases} 3y = 12 - x \\ y = -8x - 1 \end{cases}$$

$$\begin{cases} y = 4 - \frac{1}{3}x \\ y = -8x - 1 \end{cases}$$

The lines are neither parallel nor perpendicular because the slopes ( $-1/3$  and  $-8$ ) are neither identical nor negative reciprocals, respectively.