Exercise 14

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

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

$$3x + y = -9$$

Solution

Solve each of the equations for y.

$$\begin{cases} y = \dfrac{1}{3}x - 2 \\ 3x + y = -9 \end{cases}$$

$$\begin{cases} y = \dfrac{1}{3}x - 2 \\ y = -3x - 9 \end{cases}$$

Because one slope is the negative reciprocal of the other, the lines are perpendicular.