Exercise 13

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

$$2x - 6y = 12$$

$$-x + 3y = 1$$

Solution

Solve each of the equations for y.

$$\begin{cases} 2x - 6y = 12 \\ -x + 3y = 1 \end{cases}$$

$$\begin{cases} -6y = -2x + 12 \\ 3y = x + 1 \end{cases}$$

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

Because the lines have the same slope, $1/3$, they are parallel.