

Exercise 9

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

$$6x - 9y = 10$$

$$3x + 2y = 1$$

Solution

Solve the given equations for y .

$$\begin{cases} -9y = -6x + 10 \\ 2y = -3x + 1 \end{cases}$$

$$\begin{cases} y = \frac{2}{3}x - \frac{10}{9} \\ y = -\frac{3}{2}x + \frac{1}{2} \end{cases}$$

The lines are perpendicular because the slopes ($2/3$ and $-3/2$) are negative reciprocals.