Exercise 19

For the following exercises, use the descriptions of each pair of lines given below to find the slopes of Line 1 and Line 2. Is each pair of lines parallel, perpendicular, or neither?

- Line 1: Passes through $(-8, -55)$ and $(10, 89)$

- Line 2: Passes through $(9, -44)$ and $(4, -14)$

Solution

Use the slope formula for each line.

$$\text{Line } 1: \quad m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{89 - (-55)}{10 - (-8)} = \frac{144}{18} = 8$$

$$\text{Line } 2: \quad m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-14 - (-44)}{4 - 9} = \frac{30}{-5} = -6$$

Because the slopes are neither identical nor negative reciprocals, the lines are neither parallel nor perpendicular.