Slope Homework

1. Find the slope of the lines graphed below. Assume the x- and y-axes count by 1’s.

(A) 
\[ M = \frac{\Delta y}{\Delta x} = \frac{1}{1} = 1 \]

(B) 
\[ M = \frac{\Delta y}{\Delta x} = \frac{-1}{1} = -1 \]

(C) 
\[ M = \frac{\Delta y}{\Delta x} = \frac{1}{2} \]

(D) 
\[ M = \frac{\Delta y}{\Delta x} = \frac{0}{1} = 0 \]

2. Find the slope given the rise and run.

(A) Rise: -6
Run: 3
Slope: \[ M = \frac{\Delta y}{\Delta x} = \frac{-6}{3} = -2 \]

(B) Rise: 3
Run: 10
Slope: \[ M = \frac{\Delta y}{\Delta x} = \frac{3}{10} \]

(C) Rise: -9
Run: -5
Slope: \[ M = \frac{\Delta y}{\Delta x} = \frac{-9}{-5} = \frac{9}{5} \]

(D) Rise: -1
Run: 7
Slope: \[ M = \frac{\Delta y}{\Delta x} = \frac{-1}{7} \]

3. Find the slope given the two points.

(A) (2, 3) & (2, 6)
\[ M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 3}{2 - 2} = \frac{3}{0} \] (undefined - vertical line)

(B) (2, 7) & (0, 0)
\[ M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 0}{2 - 0} = \frac{7}{2} \]

(C) (8, 10) & (8, 7)
\[ M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 7}{8 - 8} = \frac{3}{0} \] (undefined - vertical line)

(D) (10, 4) & (7, 4)
\[ M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 4}{10 - 7} = \frac{0}{3} = 0 \] (horizontal line)
4. Find the parallel and perpendicular slopes based on the given information.

(A) Rise: 4
    Run: 8
Parallel slope:

\[ M = \frac{\Delta y}{\Delta x} = \frac{4}{8} = \frac{1}{2} \]

Perpendicular slope: -2

(B) (-3,2) & (2,3)
Parallel slope:

\[ M = \frac{\Delta y}{\Delta x} = \frac{3-2}{2+3} = \frac{1}{5} \]

Perpendicular slope: -5