Slope of a Line

Slope: the steepness of a line

The slope m of a line can be computed by finding the quotient of the rise and the run.

$$m = \frac{rise}{run}$$

The slope m of the line passing through two points $P_1(x_1, y_1)$ and $P_2(x_2, y_2)$ is given by

$$m = \frac{y_2 - y_1}{x_2 - x_1}, \text{ where } x_1 \neq x_2.$$

The slope of the horizontal line is zero while that of the vertical line is undefined.

The value of the slope m tells the trend of the graph.

If m is positive, then the graph is increasing from left to right.

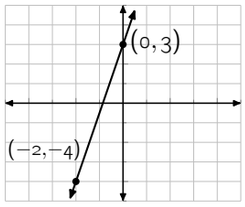
If m is negative, then the graph is decreasing from left to right.

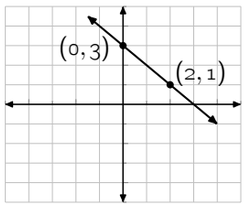
If m is zero, then the graph is a horizontal line.

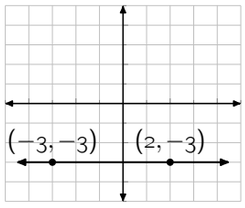
If m is undefined, then the graph is a vertical line.

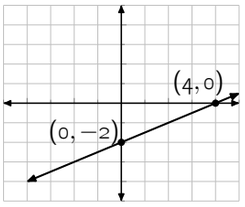
Practice Exercises

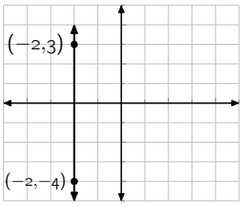
A. Find the slope of each line below.

1. 

2. 

3. 

4. 

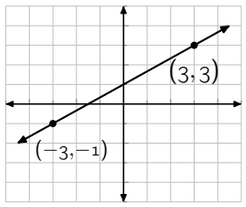
5. 

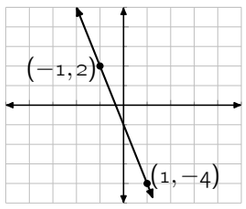
B. Determine the slope and trend of each line.

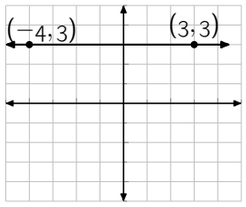
1. $f(x) = 2x - 5$
2. $f(x) = x + 6$
3. $f(x) = \frac{2}{3}x - \frac{1}{2}$
4. $7x - 3y - 10 = 0$
5. $x = 8$

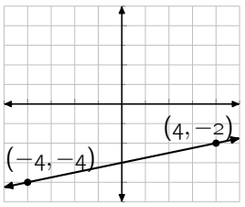
Problem Set

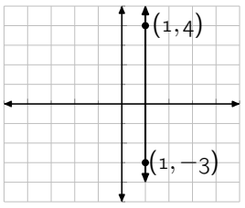
A. Find the slope of each line below.

1. 

2. 

3. 

4. 

5. 

B. Determine the slope and trend of each line.

1. $f(x) = -3x + 7$
2. $f(x) = \frac{1}{4}x - 8$
3. $2x - y = 5$
4. $\frac{1}{2}x + \frac{1}{4}y - 8 = 0$
5. $2y + 1 = 0$

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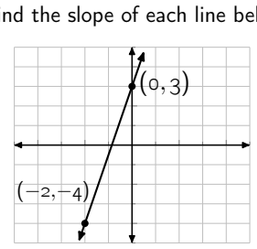
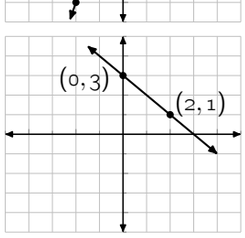
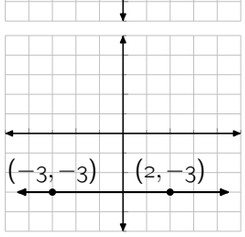
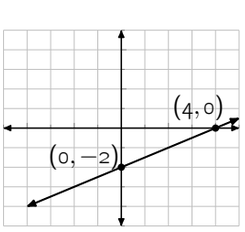
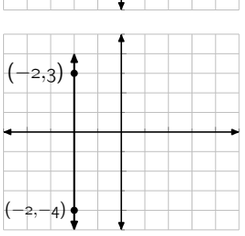
1. 

2. 

3. 

4. 

5. 

B. Determine the slope and trend of each line.

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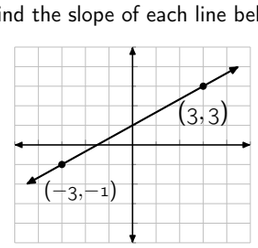
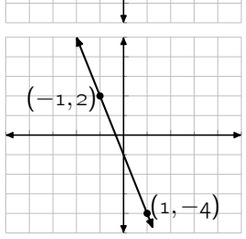
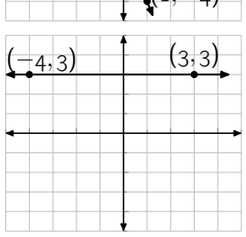
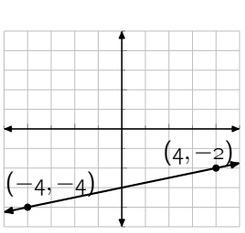
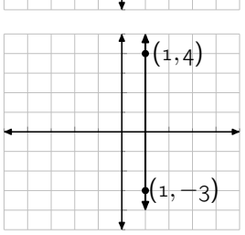
1. 

2. 

3. 

4. 

5. 

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