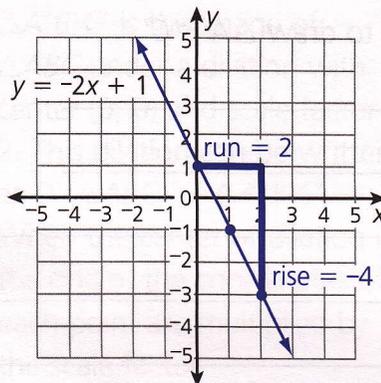


You can graph a **linear equation** by making a table of values. The **slope** of the line tells how steeply it goes up or down. The **y-intercept** is the point where the line crosses the y-axis.

Graph: $y = -2x + 1$

| x | y |
|---|----|
| 0 | 1 |
| 1 | -1 |
| 2 | -3 |

Slope = $\frac{\text{rise}}{\text{run}} = \frac{-4}{2} = -2$
 y-intercept = (0, 1)



A line with a **positive slope** slants upward from left to right.

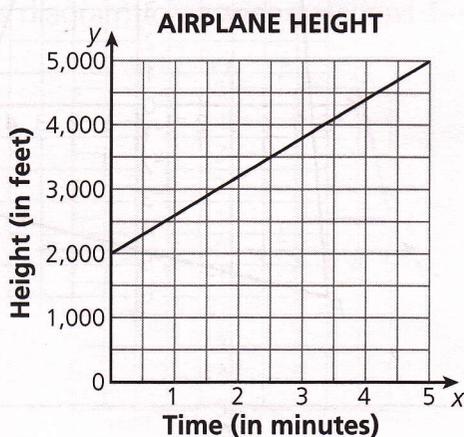
A line with a **negative slope** slopes downward.

A **horizontal line** has a slope of 0.

A **vertical line** has an undefined slope, or no slope. It is **not** the same as a slope of 0.

Read each problem. Circle the letter of the best answer.

Use this graph to answer questions 1 and 2.



1 At what rate is the airplane's height increasing?

- A $600 \frac{\text{ft}}{\text{min}}$
- B $800 \frac{\text{ft}}{\text{min}}$
- C $1,000 \frac{\text{ft}}{\text{min}}$
- D $3,000 \frac{\text{ft}}{\text{min}}$

The line on the graph connects the points (0, 2,000) and (5, 5,000). The "rise" is 3,000 feet, and the "run" is 5 minutes, so the slope is $\frac{3,000}{5} = 600$ feet per minute. The correct answer is A.

2 What is the meaning of the y-intercept of the graph?

- A The airplane was at height 2,000 feet at time 0.
- B The airplane was at height 5,000 feet at time 5.
- C The airplane was traveling 2,000 feet per minute at time 0.
- D The airplane was traveling 5,000 feet per minute at time 5.

A line has points (1, -3), (2, -4), and (3, -5). Answer questions 3 and 4 about this line.

3 What was the y-intercept of the line?

- A (-2, 0)
- B (-1, -1)
- C (0, -2)
- D (0, -1)

4 What was the slope of the line?

- A -2
- B -1
- C 1
- D 2

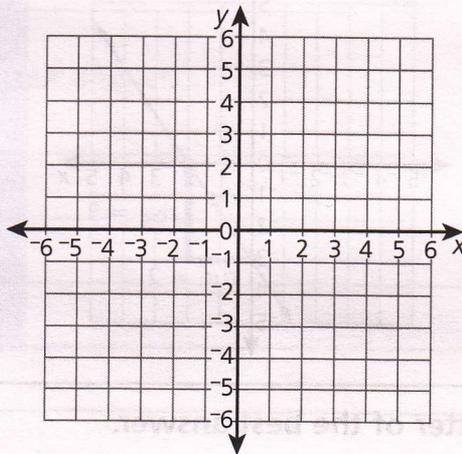
Read each problem. Write your answers.

5 Look at this linear equation.

$$y = \frac{1}{2}x + 2$$

A Make a table of values for the equation above.

| x | y |
|---|---|
| | |
| | |
| | |



B Graph the equation $y = \frac{1}{2}x + 2$ on the coordinate plane.

6 Tanya is riding her scooter home from soccer practice. The graph shows how her distance from home is changing over time.

A What is the y-intercept of the line on the graph?

Answer: _____

B What is the slope of the line?

Answer: _____

C Explain the meaning of the y-intercept and slope of the line as they relate to Tanya riding her scooter home.

