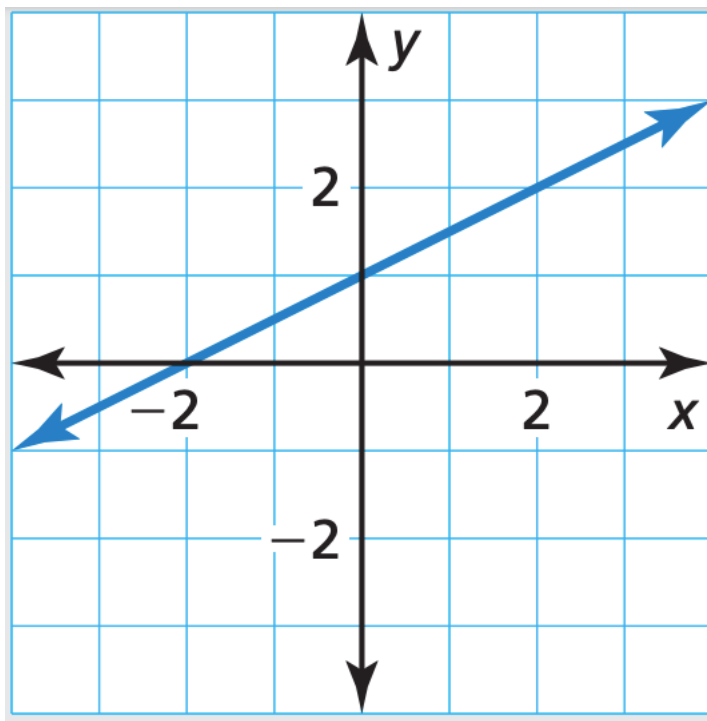# Bell Work

Identify the intercepts.

Identifying Linear Functions

A **linear equation in two variables**, x and y, is an equation that can be written in the form

$$y = mx + b$$

where m and b are constants. The graph of a linear equation is a line. Likewise, a **linear function** is a function whose graph is a nonvertical line. A linear function has a constant rate of change and can be represented by a linear equation in two variables. A **nonlinear function** does not have a constant rate of change. So, its graph is *not* a line.

Does the graph represent a linear or nonlinear function? Explain.

a.

b.
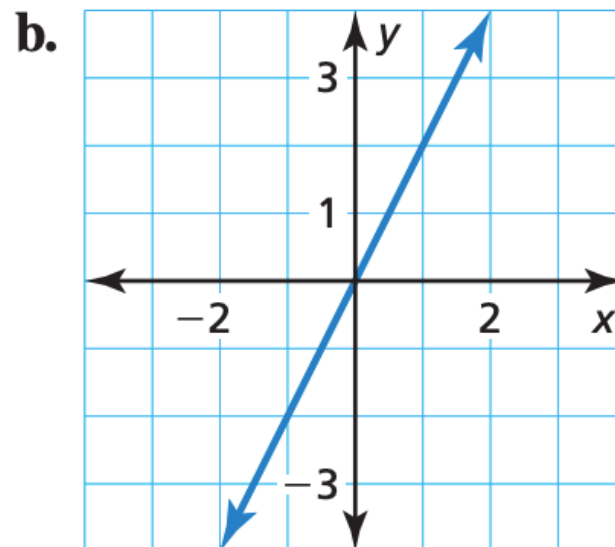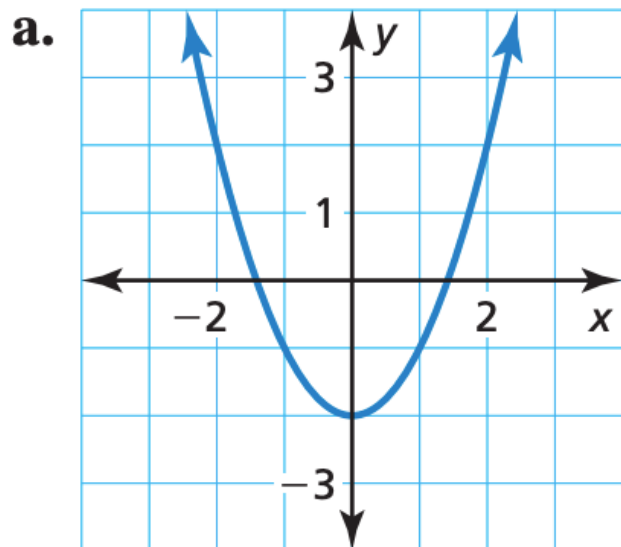
Does the table represent a linear or nonlinear function? Explain.

a.

x	3	6	9	12
y	36	30	24	18

b.

x	1	3.5	6	8.5
y	2	9	20	35

Which of the following equations represent linear functions? Explain.

$$y = 3.8$$

$$y = \sqrt{x}$$

$$y = 3^x$$

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

$$y = 6(x - 1)$$

$$x^2 - y = 0$$

Which of the following equations represent linear functions? Explain.

$$y = 2^x$$

$$y = 5x$$

$$y = 3x - 2x^2$$

$$y = \sqrt{x} + 3$$

$$x - y = 12$$

$$2x = 4y + 1$$

KEY IDEA

Discrete and Continuous Domains

A **discrete domain** is a set of input values that consists of only certain numbers in an interval.

Example: Integers from 1 to 5

A **continuous domain** is a set of input values that consists of all numbers in an interval.

Example: All numbers from 1 to 5

The linear function y = 15.95x represents the cost y (in dollars) of x tickets for a museum. Each customer can buy a maximum of four tickets.

a. Find the domain of the function. Is the domain discrete or continuous? Explain.

b. Graph the function using its domain.

An anteater consumes about 35,000 insects each day. The linear function $n = 35,000d$ represents the total number of insects n throughout the day d.

a. Interpret the terms and coefficients of the function.

b. Find the domain of the function. Is the domain discrete or continuous? Explain.

c. Graph the function using its domain.