32 Functions

P.1.C P.1.D P.3.B P.4.D P.14.B

Example

What is the rule for this function?

x	y
–5	–7
–2	–1
3	9
5	13

A. $y = x - 2$ **B.** $y = 2x + 3$
C. $y = 3x$ **D.** $y = 3x - 2$

Thinking It Through

Solve —***Test It: Eliminate Wrong Answers*** Since the funtion's rule must work for each pair of values, you can go through each of the answer choices.

When you do this, you will find that A only works for the first pair, C only works for the third pair and D only works for the last pair. That leaves B, which works for every pair.

The correct answer is *$y = 2x + 3$, answer B*.

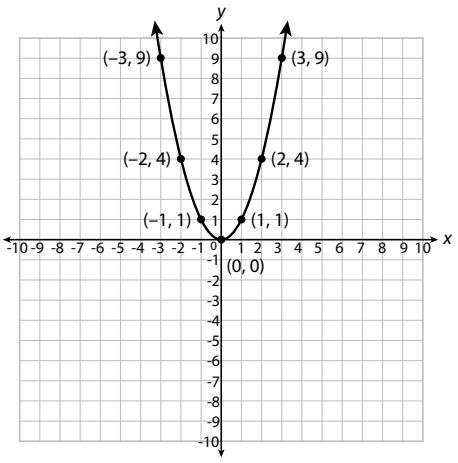
Example

Which function is nonlinear?

A. $y = x^2$
B. $y = \frac{x}{2}$
B. $y = x - 2$
D. $y = 2x$

Thinking It Through

Solve —***Test It: Eliminate Wrong Answers*** You can graph each of the functions to determine which is nonlinear. Substitute several values for x to find the corresponding values for y. Use both positive and negative integer values for x.



You will find that choice A is nonlinear function—that is, it does not form a straight line when graphed.

Review

- A **function** is a relationship in which one quantity depends on another quantity. The rule of a function must work for every pair of values in a set.

- A **linear function** forms a straight line when graphed. A **nonlinear function** does not form a straight line when graphed. Examples of nonlinear functions include when x is used as a denominator, such as $y = \frac{1}{x}$, or when it is raised to a power, such as $y = x^2$.

Functions

32

Directions: Carefully read each question. Circle the letter of the correct answer.

1. What is the rule for this function?

x	y
–6	–22
–3	–10
1	6
4	18

A. $y = 3x - 4$

B. $y = 3x - 1$

C. $y = 4x + 2$

D. $y = 5x - 2$

The rule for a function must work for every pair of values.

2. Which ordered pair is on the line of the graph of the function $y = 2x - 1$?

A. $(^{-}4, ^{-}7)$

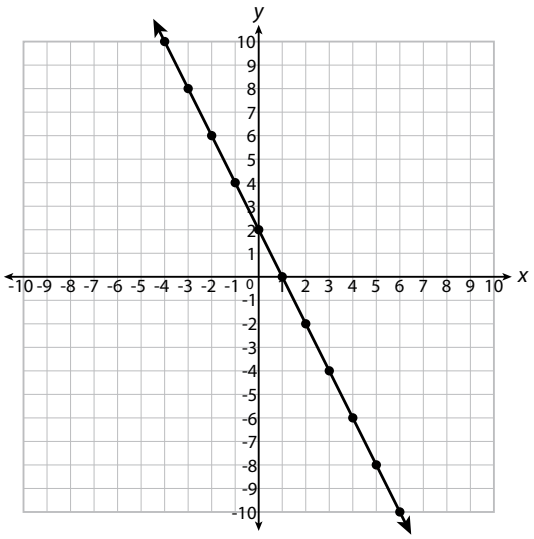
B. $(^{-}2, ^{-}5)$

C. (0, 1)

D. (3, 7)

Substitute each ordered pair into the function to test it.

3. What is the rule for this function?



A. $y = x + 2$

B. $y = {}^{-}x + 2$

C. $y = {}^{-}2x - 2$

D. $y = {}^{-}2x + 2$

4. Which of these functions could contain the ordered pair (3, 5)?

A. $y = x^2 - 4$

B. $y = 2x + 2$

C. $y = 3x - 3$

D. $y = 4x - 5$