

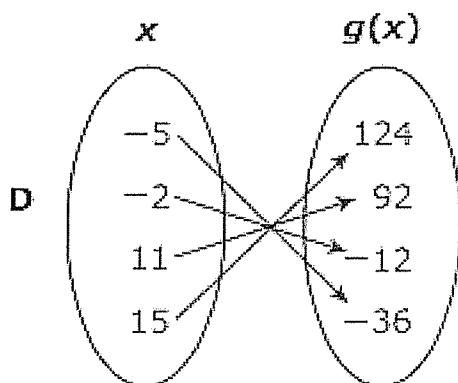
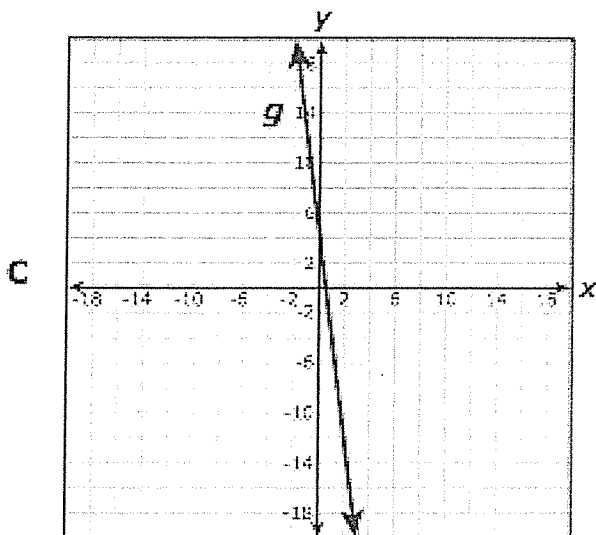
Functions

41 Which representation shows the same relationship as $g(x) = \frac{4}{3}(6x - 3)$?

A

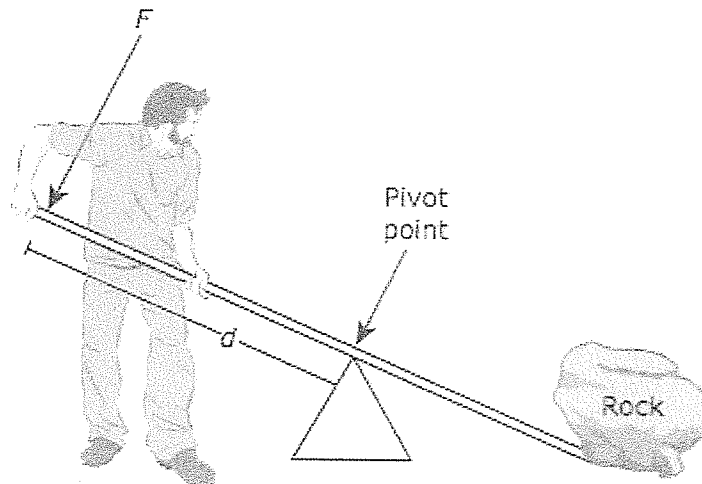
x	$g(x)$
28	3
12	1
-20	-3
-36	-5

B $g = \{(13, 108), (10, 94), (4, 36), (-3, -20)\}$



Equations

- 18 A farmer uses a lever to move a large rock. The force required to move the rock varies inversely with the distance from the pivot point to the point the force is applied. A force of 50 pounds applied to the lever 36 inches from the pivot point of the lever will move the rock. Which function models the relationship between F , the amount of force applied to the lever, and d , the distance of the applied force from the pivot point?



F $d = \frac{F}{1,800}$

G $d = \frac{86}{F}$

H $F = \frac{1,800}{d}$

J $F = \frac{d}{86}$

- 42 If $f(x) = \frac{2}{3}x^2 + 8x$, what is the value of $f(6)$?

Record your answer and fill in the bubbles on your answer document.

Equations

23 What is the equation in standard form of the line that passes through the point $(4, -8)$ and has a slope of $\frac{1}{4}$?

A $x - 4y = 36$

B $x - 4y = 28$

C $x - 4y = -36$

D $x - 4y = -28$

14 A senior employee who works 16 hours earns \$39.50 more than a junior employee who works 18 hours. The senior employee earns \$14 per hour. What is the hourly pay in dollars and cents for the junior employee?

Record your answer and fill in the bubbles on your answer document.

Equations

- 31** Airline passengers pay \$439 to fly to California. For this price, customers may check 2 pieces of luggage. There is a fee of \$25 for each additional piece of luggage a passenger wants to check. Which function can be used to find the amount in dollars a passenger has to pay to fly with p pieces of luggage, where $p \geq 2$?

A $c = 25p + 439$

B $c = 25(p - 2) + 439$

C $c = \frac{p}{25} + 439$

D $c = \frac{p - 2}{25} + 439$

- 10** A city employee paints curbs in parking lots and replaces road signs. It takes 0.5 hour to paint a parking lot curb and 2.5 hours to replace a road sign. The function below can be used to find c , the number of parking lot curbs the employee paints when he replaces r road signs in a 40-hour workweek.

$$c = \frac{40 - 2.5r}{0.5}$$

If the employee painted 20 curbs in one week, how many road signs did he replace that week?

F 20

G 30

H 0

J 12

Functions

- 19** Which set of ordered pairs represents y as a function of x ?
- A** $\{(-9, 2), (0, 6), (1, -2), (-3, 6)\}$
- B** $\{(-1, 0), (4, 3), (-7, -3), (-1, -8)\}$
- C** $\{(3, 2), (-4, -2), (3, 1), (-4, 1)\}$
- D** $\{(5, 4), (2, 3), (1, 1), (2, 4)\}$
-
- 48** If $f(x) = (x - 3)^2 + 4$ and $g(x) = x^3 + 2$, which statement is true?
- F** $f(-2) = g(-3)$
- G** $f(0) = g(-1)$
- H** $f(8) = g(3)$
- J** $f(2) = g(1)$

Functions

- 20** For the function w , $w(9) = -7$, and $w(-7) = 9$. If $y = w(x)$, what is the value of y when $x = -7$?

Record your answer and fill in the bubbles on your answer document.

- 18** The population of a town is currently 9,000. The function $p = 9,000 + 8t^2$ can be used to estimate p , the population of the town t years from now. Based on this function, which statement is true?
- F** The population of the town is increasing at a constant rate.
 - G** The population of the town will reach 10,000 between 11 and 12 years from now.
 - H** The population of the town will increase by 256 people two years from now.
 - J** The population of the town will increase and then decrease.

Functions

- 36 The set of ordered pairs below represents some points on the graph of function f .

$$\{(3, 11), (-1, 3), (5, 15), (-4, -3), (-7, -9)\}$$

What is the parent function of f ?

F $y = x$

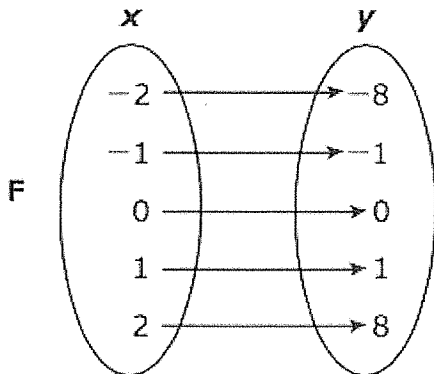
G $y = 2^x$

H $y = x^2$

J $y = \sqrt{x}$

Functions

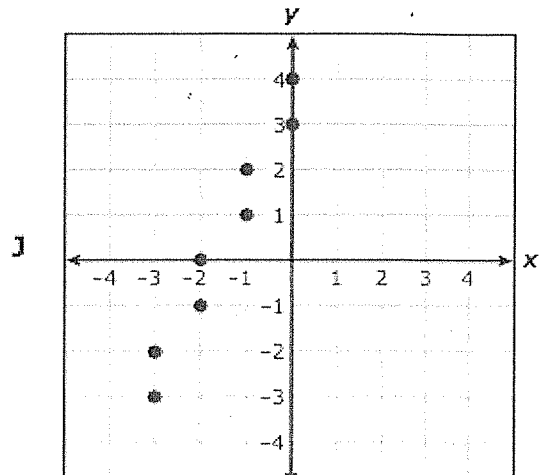
- 46 Which representation does not show y as a function of x ?



H

x	y
2	-6
5	-1
7	-1
8	3

G $\{(-1, -2), (0, 1), (2, 4), (7, 7)\}$



Functions

- 10** The value of y varies directly with x . Which function represents the relationship between x and y if $y = \frac{20}{3}$ when $x = 30$?

F $y = 200x$

G $y = \frac{2}{9}x$

H $y = \frac{110}{3}x$

J $y = \frac{9}{2}x$

- 50** If the value of y varies inversely with x , which function represents the relationship between x and y if $y = 48$ when $x = 3$?

F $y = \frac{144}{x}$

G $y = \frac{16}{x}$

H $y = \frac{x}{16}$

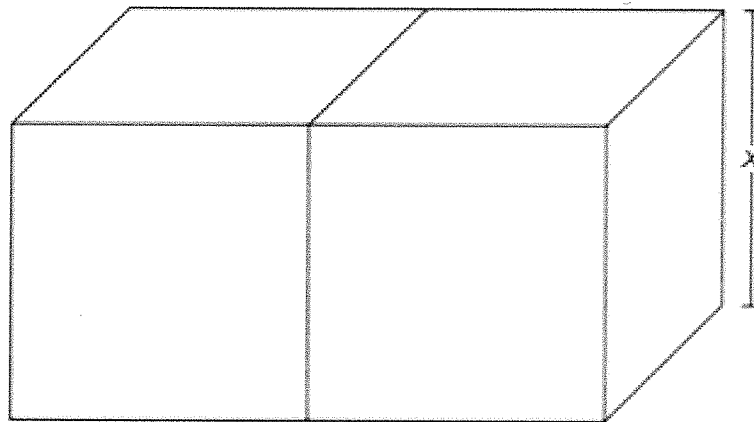
J $y = \frac{x}{144}$

Area/Perimeter/Volume

31 The measure of an obtuse angle is represented by $(9x + 27)^\circ$. Which is not a possible value for x ?

- A 7.1
- B 12.3
- C 16.9
- D 6.8

44 The volume of two identical cubes is related to the edge length of the cubes.



Which function represents the combined volume of these cubes?

- F $y = 2x^3$
- G $y = x^3$
- H $y = 8x^3$
- J $y = 2x^2$

Area/Perimeter/Volume

12 A rectangular prism has a width of x inches, a length of x^2y inches, and a height of y^2 inches. Which expression represents the volume in cubic inches of this rectangular prism?

F $4x^2y^2$

G $4x^3y^3$

H x^2y^2

J x^3y^3

6 The perimeter of a rectangle is 42 centimeters. The length of the rectangle can be represented by $(x + 4)$, and its width can be represented by $(2x - 7)$. What are the dimensions of this rectangle in centimeters?

F Length = 10 and width = 11

G Length = 8 and width = 13

H Length = 6 and width = 15

J Length = 12 and width = 9