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

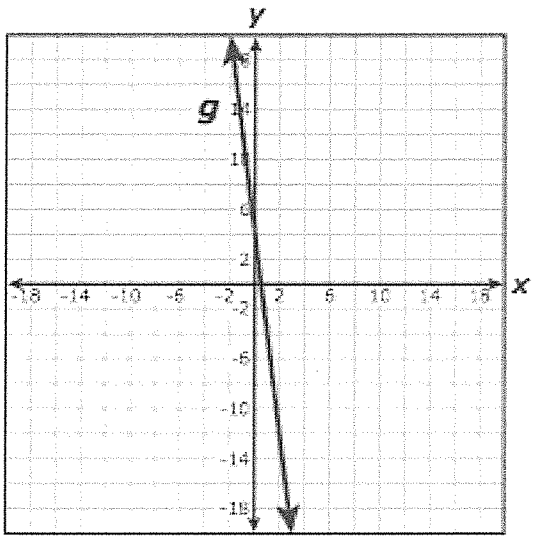
41 Which representation shows the same relationship as $g(x) = \frac{4}{3}(6x + 3)$?

A

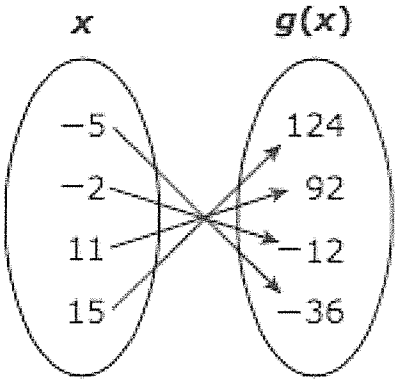
x	$g(x)$
28	3
12	1
−20	−3
−36	−5

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

C



D



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 $f(0) = g(-1)$

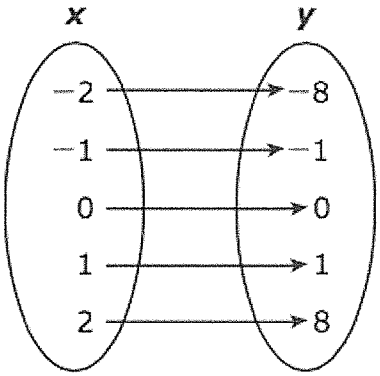
H $f(8) = g(3)$

J $f(2) = g(1)$

Functions

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

F

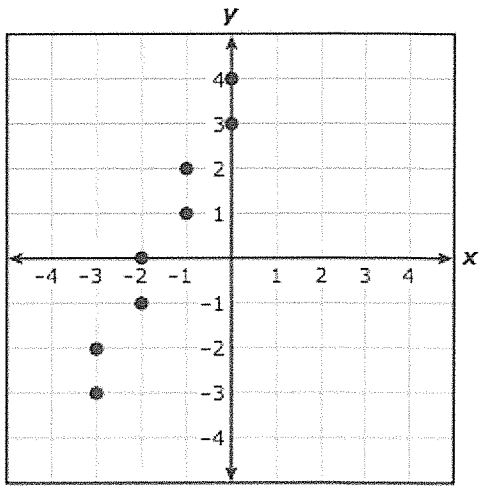


G {(−1, −2), (0, 1), (2, 4), (7, 7)}

H

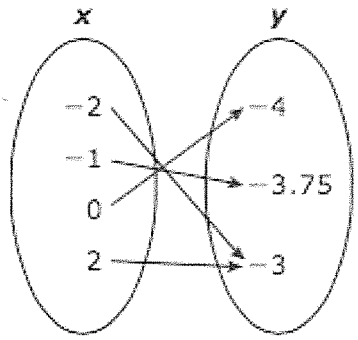
x	y
2	−6
5	−1
7	−1
8	3

J



Functions

7 The mapping below represents y as a quadratic function of x.

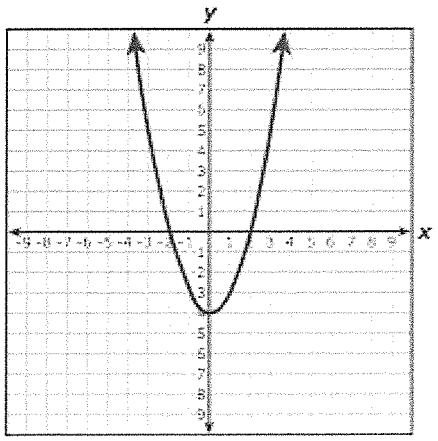


Which representation shows the same relationship between x and y?

A

x	y
−3	1.75
0	−4
1	3.75
3	1.75

B



C $\{(-4, -6), (-2, -3), (0, -4), (1, -3.75)\}$

D $y = 0.25x^2 - 4$

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