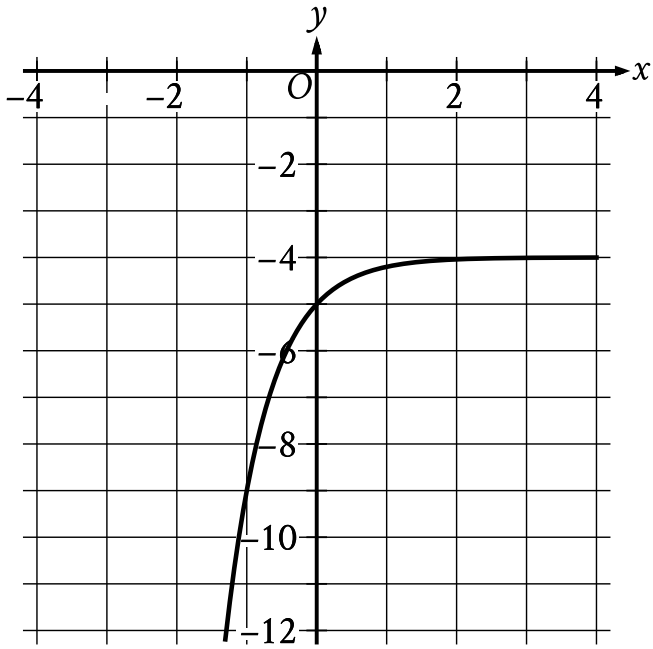


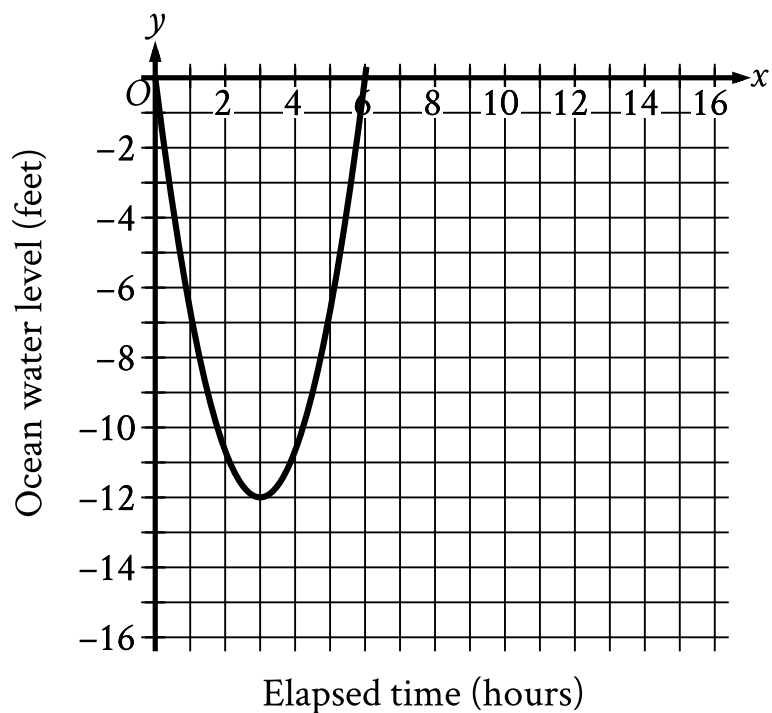
The graph shows the height above ground, in meters, of a ball  $x$  seconds after the ball was launched upward from a platform. Which statement is the best interpretation of the marked point  $(1.0, 4.8)$  in this context?

- A. **1.0** second after being launched, the ball's height above ground is **4.8** meters.
- B. **4.8** seconds after being launched, the ball's height above ground is **1.0** meter.
- C. The ball was launched from an initial height of **1.0** meter with an initial velocity of **4.8** meters per second.
- D. The ball was launched from an initial height of **4.8** meters with an initial velocity of **1.0** meter per second.



What is the  $y$ -intercept of the graph shown?

- A.  $(-1, -9)$
- B.  $(0, -5)$
- C.  $(0, -4)$
- D.  $(0, 0)$



Scientists recorded data about the ocean water levels at a certain location over a period of **6** hours. The graph shown models the data, where  $y = 0$  represents sea level. Which table gives values of  $x$  and their corresponding values of  $y$  based on the model?

A.

$x$	$y$
0	-12
0	3
3	6

B.

$x$	$y$
0	0
3	12
0	-6

C.

$x$	$y$
0	0
3	-12
6	0

D.

$x$	$y$
0	0

12	3
−6	0

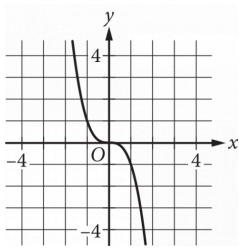
The function  $f$  is defined by  $f(x) = 4 + \sqrt{x}$ . What is the value of  $f(144)$ ?

- A. 0
- B. 16
- C. 40
- D. 76

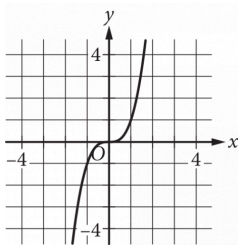
$x$	$y$
0	0
1	1
2	8
3	27

The table shown includes some values of  $x$  and their corresponding values of  $y$ . Which of the following graphs in the  $xy$ -plane could represent the relationship between  $x$  and  $y$  ?

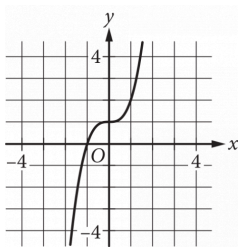
A.



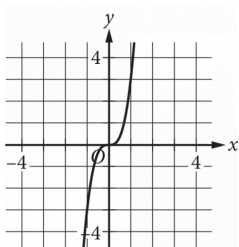
B.



C.

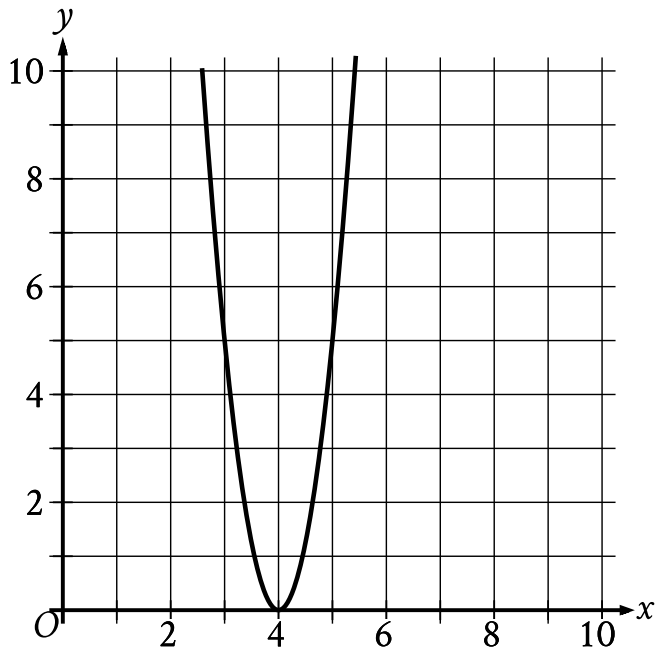


D.



The function  $f$  is defined by  $f(x) = \frac{1}{6x}$ . What is the value of  $f(x)$  when  $x = 3$ ?

- A.  $\frac{1}{3}$
- B.  $\frac{1}{6}$
- C.  $\frac{1}{9}$
- D.  $\frac{1}{18}$



What is the x-intercept of the graph shown?

- A.  $(-5, 0)$
- B.  $(5, 0)$
- C.  $(-4, 0)$
- D.  $(4, 0)$



If  $f(x) = \frac{x^2 - 6x + 3}{x - 1}$ ,

what is  $f(-1)$ ?

- A. -5
- B. -2
- C. 2
- D. 5

$$f(x) = 2(3^x)$$

For the function  $f$  defined above, what is the value of  $f(2)$ ?

- A. 9
- B. 12
- C. 18
- D. 36

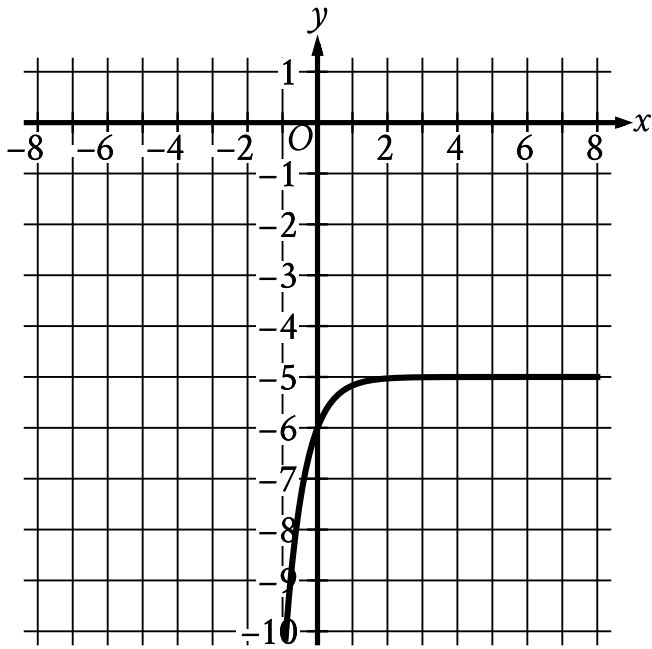
A ball is dropped from an initial height of **22** feet and bounces off the ground repeatedly. The function  **$h$**  estimates that the maximum height reached after each time the ball hits the ground is **85%** of the maximum height reached after the previous time the ball hit the ground. Which equation defines  **$h$** , where  **$h(n)$**  is the estimated maximum height of the ball after it has hit the ground  **$n$**  times and  **$n$**  is a whole number greater than **1** and less than **10**?

A.  $h(n) = 22(0.22)^n$

B.  $h(n) = 22(0.85)^n$

C.  $h(n) = 85^{\text{msup}}$

D.  $h(n) = 85(0.85)^n$

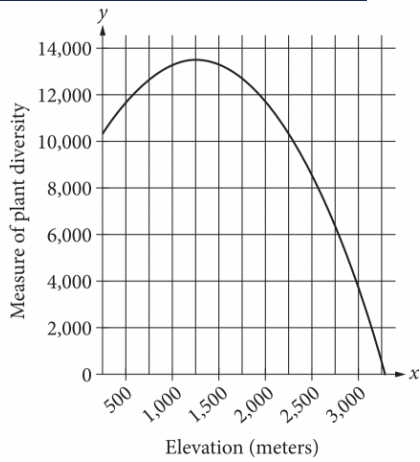


What is the y-intercept of the graph shown?

- A.  $(0, -6)$
- B.  $(-6, 0)$
- C.  $(0, 0)$
- D.  $(-5, -5)$

The function  $f(x) = 200,000(1.21)^x$  gives a company's predicted annual revenue, in dollars,  $x$  years after the company started selling light bulbs online, where  $0 < x \leq 10$ . What is the best interpretation of the statement " $f(5)$  is approximately equal to 518,748" in this context?

- A. 5 years after the company started selling light bulbs online, its predicted annual revenue is approximately 518,748 dollars.
- B. 5 years after the company started selling light bulbs online, its predicted annual revenue will have increased by a total of approximately 518,748 dollars.
- C. When the company's predicted annual revenue is approximately 518,748 dollars, it is 5 times the predicted annual revenue for the previous year.
- D. When the company's predicted annual revenue is approximately 518,748 dollars, it is 5% greater than the predicted annual revenue for the previous year.



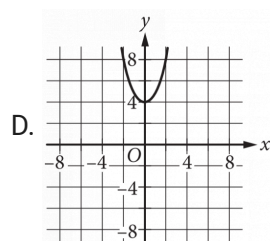
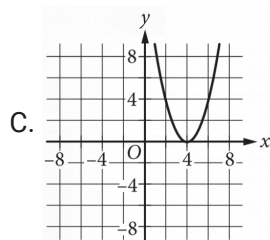
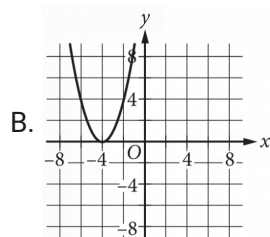
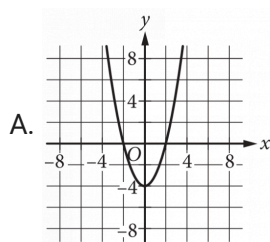
The quadratic function graphed above models a particular measure of plant diversity as a function of the elevation in a region of Switzerland. According to the model, which of the following is closest to the elevation, in meters, at which plant diversity is greatest?

- A. 13,500
- B. 3,000
- C. 1,250
- D. 250

The function  $f$  is defined by  $f(x) = 6 + \sqrt{x}$ . What is the value of  $f(36)$ ?

$$f(x) = x^2 + 4$$

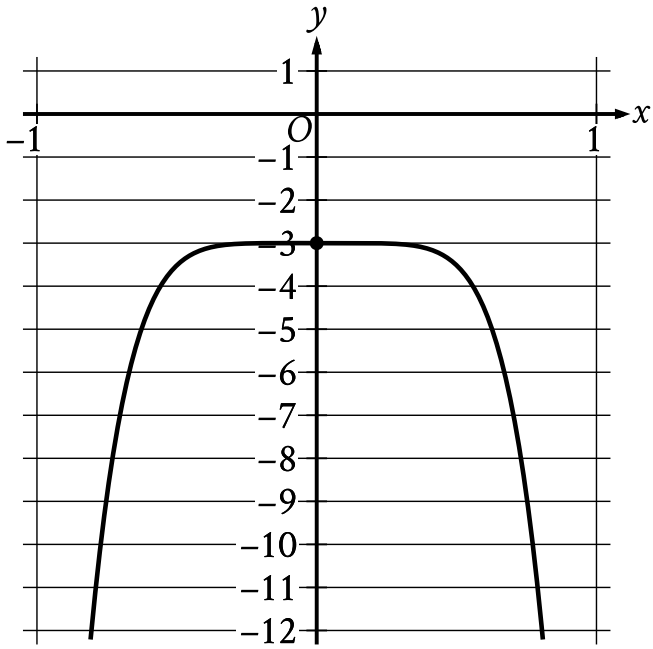
The function  $f$  is defined as shown. Which of the following graphs in the  $xy$ -plane could be the graph of  $y = f(x)$ ?





The function  $f$  is defined by  $f(x) = x^3 + 15$ . What is the value of  $f(2)$ ?

- A. 20
- B. 21
- C. 23
- D. 24



The graph of the polynomial function  $f$ , where  $y = f(x)$ , is shown. The  $y$ -intercept of the graph is  $(0, y)$ . What is the value of  $y$ ?

$$f(x) = (x + 0.25x)(50 - x)$$

The function  $f$  is defined above. What is the value of  $f(20)$ ?

- A. 250
- B. 500
- C. 750
- D. 2,000