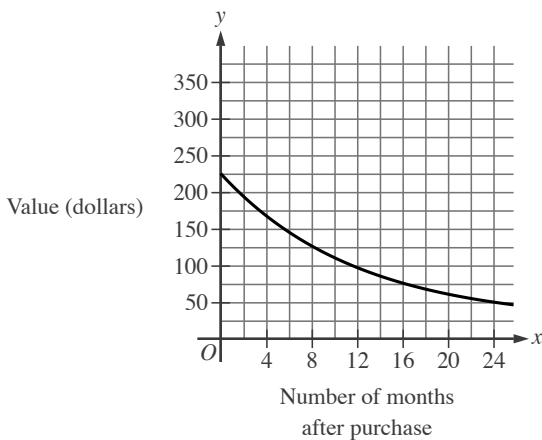


#1

ID: 7f2524bf

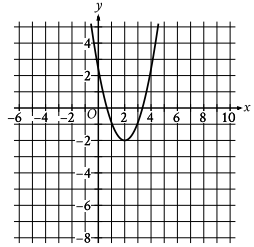


The graph shown gives the estimated value, in dollars, of a tablet as a function of the number of months since it was purchased. What is the best interpretation of the y-intercept of the graph in this context?

- A) The estimated value of the tablet was \$ 225 when it was purchased.
- B) The estimated value of the tablet 24 months after it was purchased was \$ 225 .
- C) The estimated value of the tablet had decreased by \$ 225 in the 24 months after it was purchased.
- D) The estimated value of the tablet decreased by approximately 2.25% each year after it was purchased.

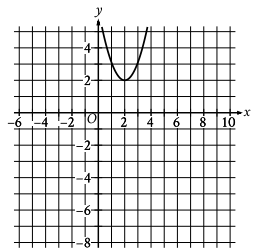
#2

ID: e9aed539

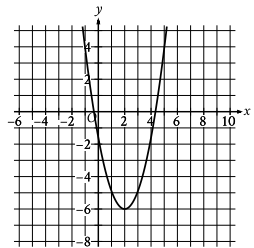


The graph shown will be translated up 4 units. Which of the following will be the resulting graph?

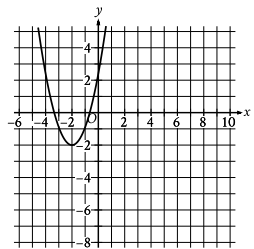
A)



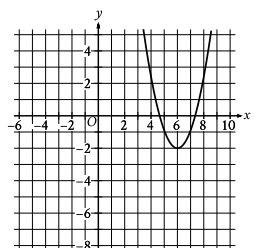
B)



C)

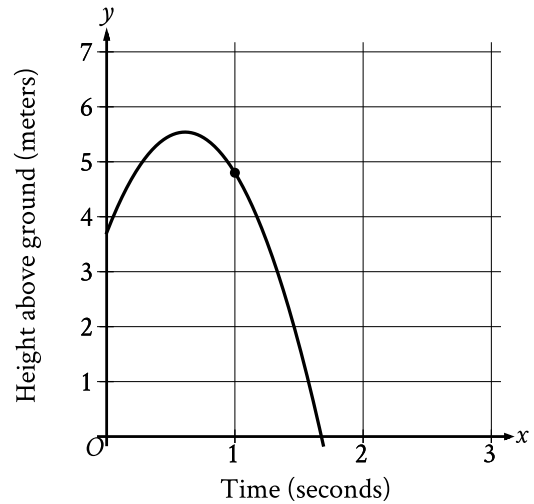


D)



#3

ID: 4fbffc0a

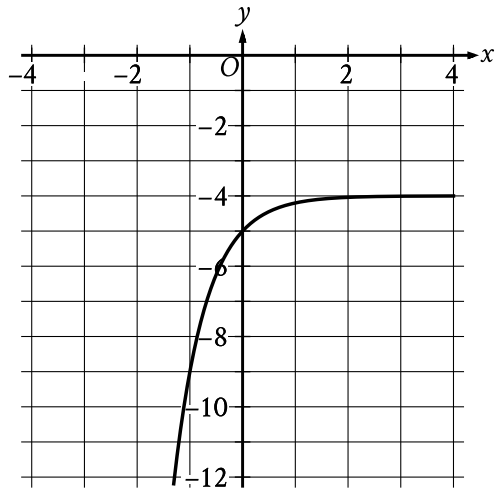


The graph shows the height above ground, in meters, of a ball x seconds after the ball was launched upward from a platform. Which statement is the best interpretation of the marked point $(1.0, 4.8)$ in this context?

- 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.

#4

ID: 6abec9a8

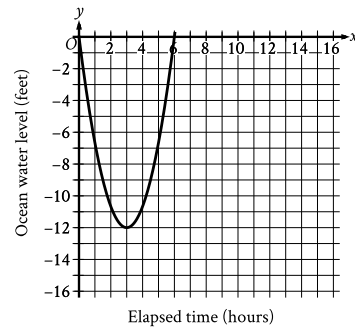


What is the y -intercept of the graph shown?

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

#5

ID: 1ee962ec



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

#6

ID: 07bcecac

$$P(t) = 24.8(1.036)^t$$

The function P gives the predicted population, in millions, of a certain country for the period from 1984 to 2018, where t is the number of years after 1984. According to the model, what is the best interpretation of the statement “ $P(8)$ is approximately equal to 32.91”?

- A) In 1984, the predicted population of this country was approximately 8 million.
- B) In 1984, the predicted population of this country was approximately 32.91 million.
- C) 8 years after 1984, the predicted population of this country was approximately 32.91 million.
- D) 32.91 years after 1984, the predicted population of this country was approximately 8 million.

#7

ID: 788bfd56

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

#8

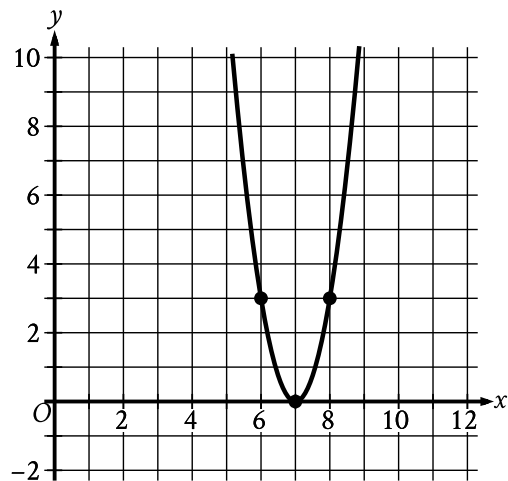
ID: 369b7bb7

The function g is defined by $g(x) = \sqrt{8x + 1}$. What is the value of $g(3)$?

- A) $\frac{5}{8}$
- B) $\frac{25}{8}$
- C) 5
- D) 25

#9

ID: cc2601cb



The x -intercept of the graph shown is $(x, 0)$. What is the value of x ?

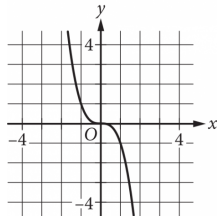
#10

ID: b39d74a0

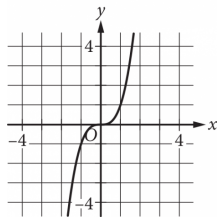
x	y
0	0
1	1
2	8
3	27

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 ?

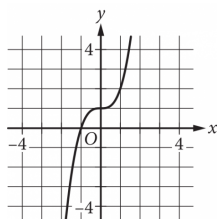
A)



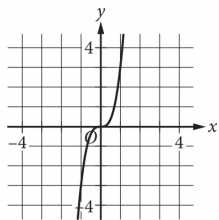
B)



C)



D)



#11

ID: 837e9da7

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

A) $\frac{1}{3}$

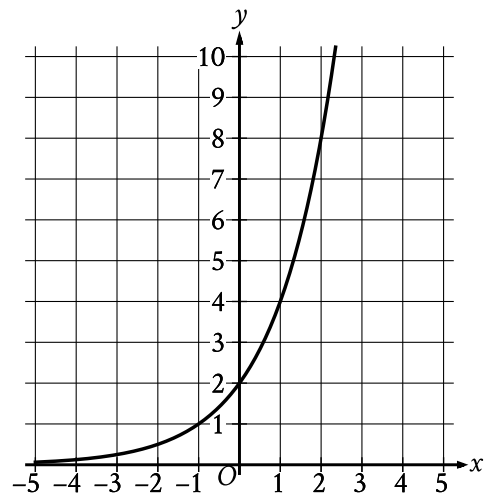
B) $\frac{1}{6}$

C) $\frac{1}{9}$

D) $\frac{1}{18}$

#12

ID: b5c43226



What is the y -intercept of the graph shown?

A) $(0, 0)$

B) $(0, 2)$

C) $(2, 0)$

D) $(2, 2)$

#13

ID: 2fec8bf4

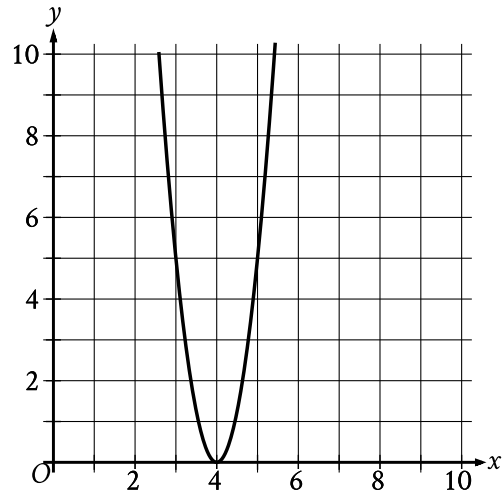
$$P(t) = 1,800(1.02)^t$$

The function P gives the estimated number of marine mammals in a certain area, where t is the number of years since a study began. What is the best interpretation of $P(0) = 1,800$ in this context?

- A) The estimated number of marine mammals in the area was 102 when the study began.
- B) The estimated number of marine mammals in the area was 1,800 when the study began.
- C) The estimated number of marine mammals in the area increased by 102 each year during the study.
- D) The estimated number of marine mammals in the area increased by 1,800 each year during the study.

#14

ID: e166aca6

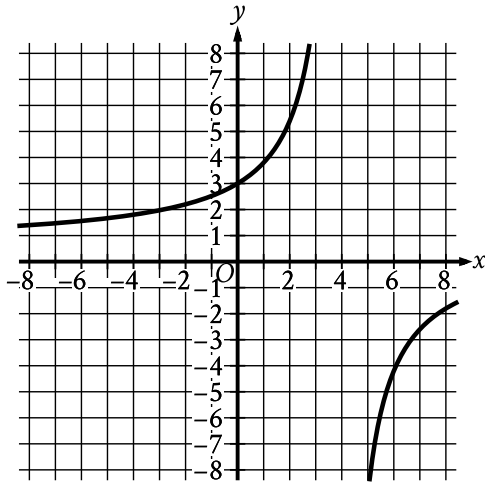


What is the x -intercept of the graph shown?

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

#15

ID: ad376f1a



The graph of $y = f(x)$ is shown in the xy -plane. What is the value of $f(0)$?

- A) -3
- B) 0
- C) $\frac{3}{5}$
- D) 3

#16

ID: bd4d0e0c

The function f is defined by $f(x) = 10x^2 - 32x - 152$. What is the value of $f(0)$?

- A) -152
- B) -32
- C) 0
- D) 10

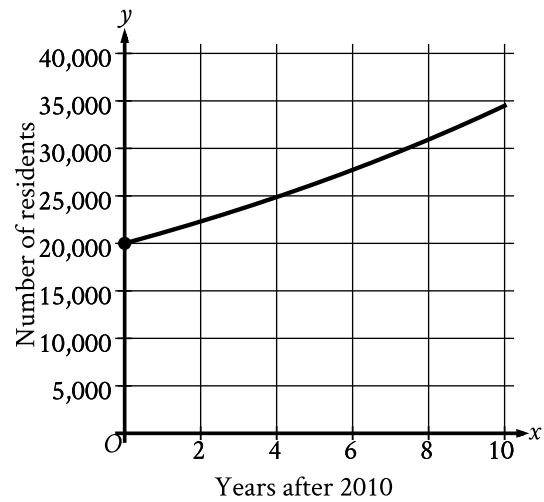
#17

ID: c13016f9

The function f is defined by $f(x) = x^2 + x + 71$. What is the value of $f(2)$?

#18

ID: 2d394c28

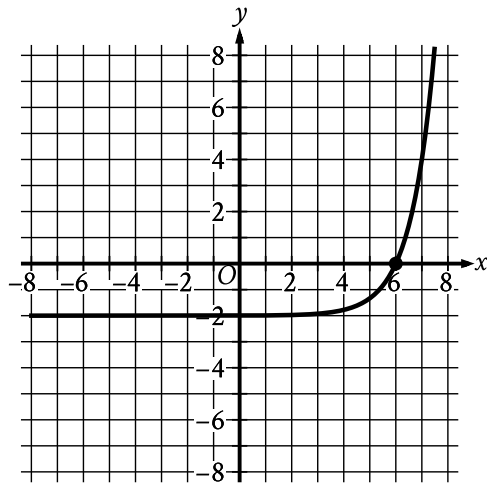


The graph shown models the number of residents of a certain city x years after 2010. How many residents does this model estimate the city had in 2010 ?

- A) 0
- B) 2,000
- C) 20,000
- D) 25,000

#19

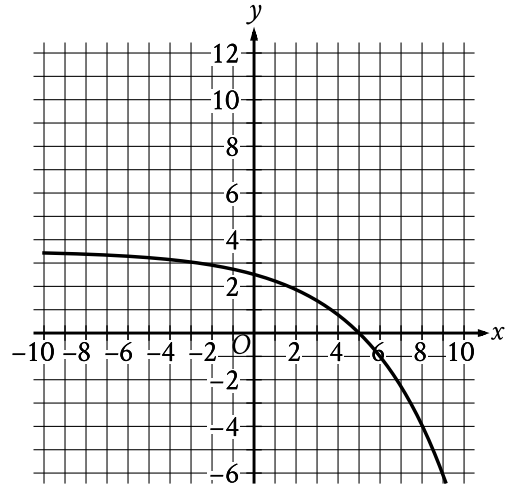
ID: 2b6c12eb



What is the x -coordinate of the x -intercept of the graph shown?

#20

ID: 79e6ec70



What is the x -intercept of the graph shown?

- A) $(-5, 0)$
- B) $(5, 0)$
- C) $(-2, 0)$
- D) $(2, 0)$

#21

ID: 5377d9cf

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

- A) -5
- B) -2
- C) 2
- D) 5

#22

ID: 75915e3c

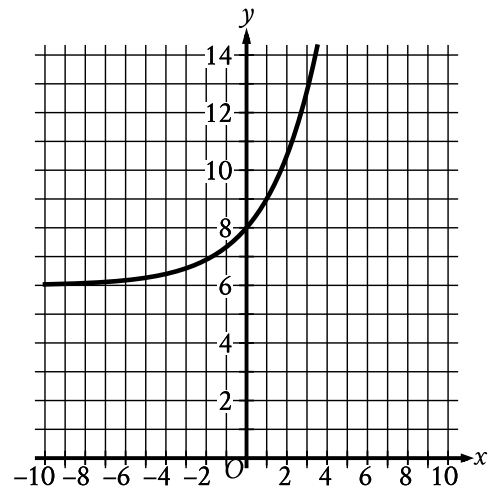
$$f(x) = 2(3^x)$$

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

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

#23

ID: f547a8b1

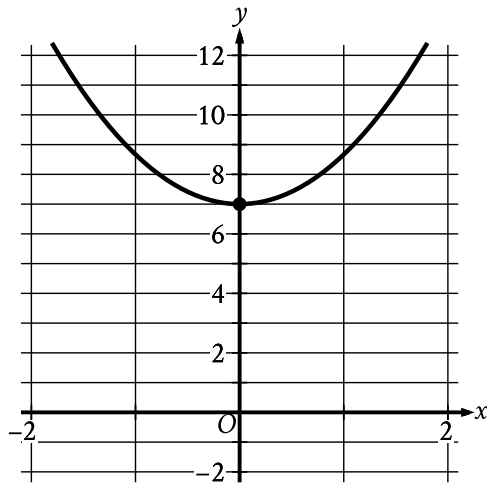


What is the y-intercept of the graph shown?

- A) (-8 , 0)
- B) (-6 , 0)
- C) (0 , 6)
- D) (0 , 8)

#24

ID: 2f4eafcc



The parabola shown intersects the y -axis at the point (x, y) . What is the value of y ?

#25

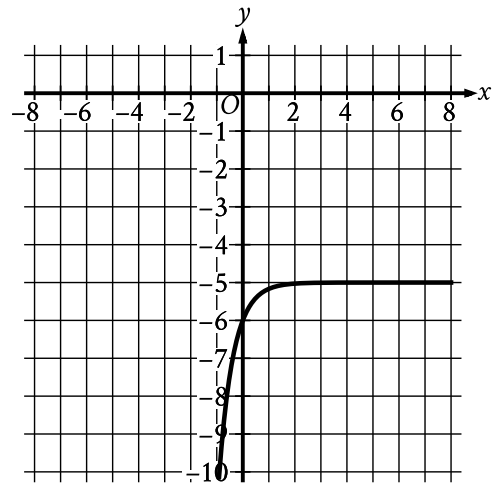
ID: 9da41c80

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) $h(n) = 85(0.22)^n$
- D) $h(n) = 85(0.85)^n$

#26

ID: 7160cbb3



What is the y -intercept of the graph shown?

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

#27

ID: 20722644

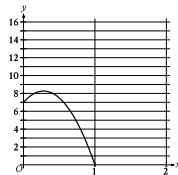
The function f is defined by $f(x) = x^3 + 9$. What is the value of $f(2)$?

- A) 14
- B) 15
- C) 17
- D) 18

#28

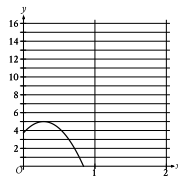
ID: 7fe7cf26

During the first part of an experiment, a ball was launched from a 7-foot-tall platform. The graph shows the height y , in feet, of the ball x seconds after it was launched during the first part of the experiment.

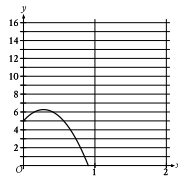


During the second part of the experiment, the ball was launched the same way, but from a platform that is 2 feet shorter than the first platform. Which of the following graphs could represent the height y , in feet, of the ball x seconds after it was launched during the second part of the experiment?

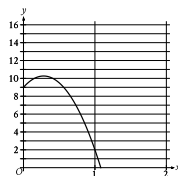
A)



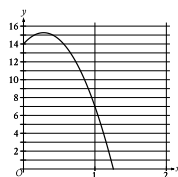
B)



C)



D)



#29

ID: 94ff3e2d

The function h is defined by $h(x) = \frac{8}{5x+6}$. What is the value of $h(2)$?

#30

ID: 72ae8a87

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.

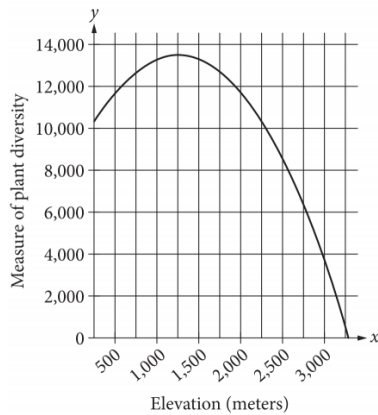
#31

ID: 09f58996

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

#32

ID: ebe4bde0

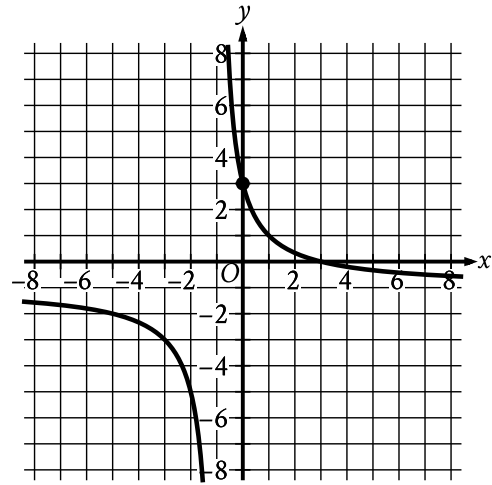


The quadratic function graphed above models a particular measure of plant diversity as a function of the elevation in a region of Switzerland. According to the model, which of the following is closest to the elevation, in meters, at which plant diversity is greatest?

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

#33

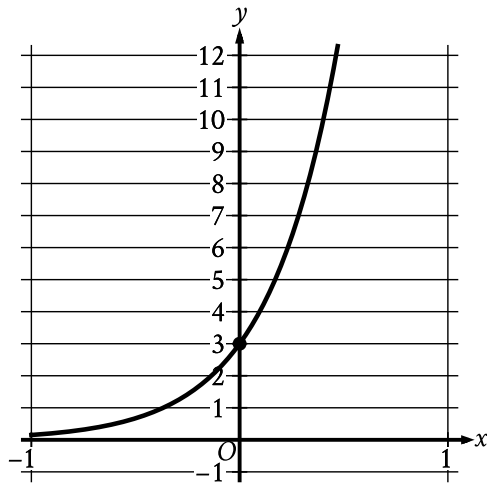
ID: c99d154a



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

#34

ID: 893c7519



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

#35

ID: 3ea87153

The function g is defined by $g(x) = x^2 + 9$. For which value of x is $g(x) = 25$?

- A) 4
- B) 5
- C) 9
- D) 13

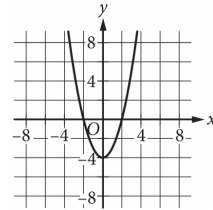
#36

ID: d46da42c

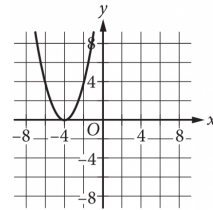
$$f(x) = x^2 + 4$$

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

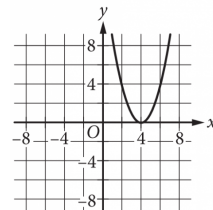
A)



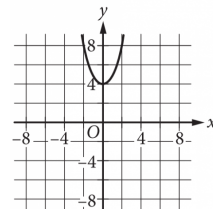
B)



C)



D)



#37

ID: 5a74f696

An investment account was opened with an initial value of \$ 890 . The value of the account doubled every 10 years. Which equation represents the value of the account $M(t)$, in dollars, t years after the account was opened?

- A) $M(t) = 890\left(\frac{1}{2}\right)^{\frac{t}{10}}$
- B) $M(t) = 890\left(\frac{1}{10}\right)^{\frac{t}{2}}$
- C) $M(t) = 890(2)^{\frac{t}{10}}$
- D) $M(t) = 890(10)^{\frac{t}{2}}$

#38

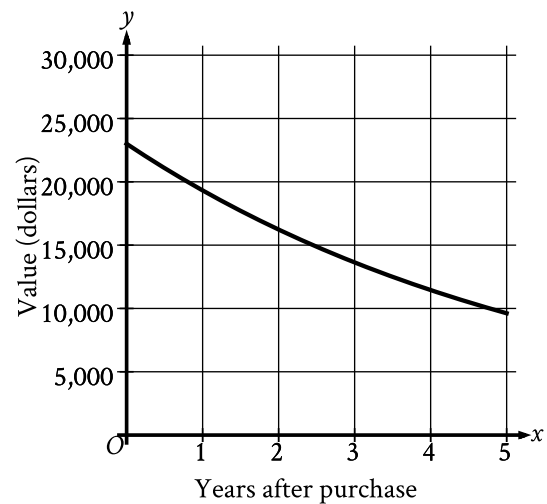
ID: 1863e3be

The y -intercept of the graph of $y = x^2 + 31$ in the xy -plane is $(0, y)$. What is the value of y ?

#39

ID: ca4ee54e

The graph shows the predicted value y , in dollars, of a certain sport utility vehicle x years after it is first purchased.



Which of the following is closest to the predicted value of the sport utility vehicle 3 years after it is first purchased?

- A) \$ 9,619
- B) \$ 13,632
- C) \$ 19,320
- D) \$ 23,000

#40

ID: c1eed73

The function g is defined by $g(x) = |x + 18|$. What is the value of $g(4)$?

- A) -18
- B) -4
- C) 14
- D) 22

#42

ID: 2cf7f039

The function f is defined by $f(x) = 8\sqrt{x}$. For what value of x does $f(x) = 48$?

- A) 6
- B) 8
- C) 36
- D) 64

#41

ID: 04b985e6

The kinetic energy, in joules, of an object with mass 9 kilograms traveling at a speed of v meters per second is given by the function K , where $K(v) = \frac{9}{2}v^2$. Which of the following is the best interpretation of $K(34) = 5,202$ in this context?

- A) The object traveling at 34 meters per second has a kinetic energy of 5,202 joules.
- B) The object traveling at 340 meters per second has a kinetic energy of 5,202 joules.
- C) The object traveling at 5,202 meters per second has a kinetic energy of 34 joules.
- D) The object traveling at 23,409 meters per second has a kinetic energy of 34 joules.

#43

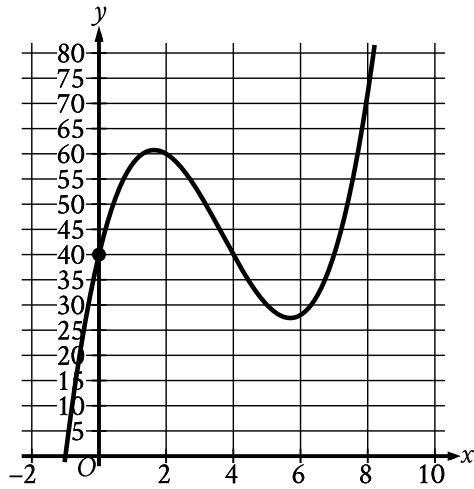
ID: 79ba511a

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

#44

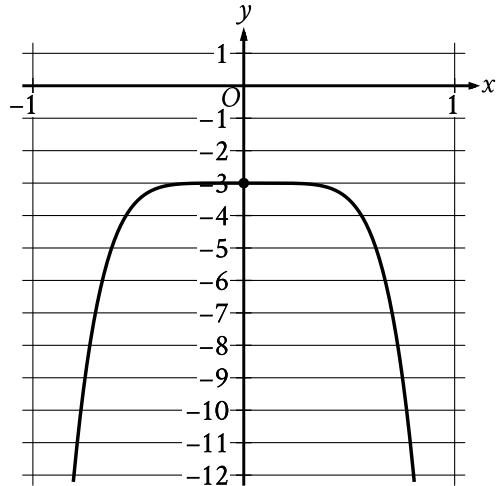
ID: 26f5269a



The y-intercept of the graph shown is (x, y) . What is the value of y ?

#45

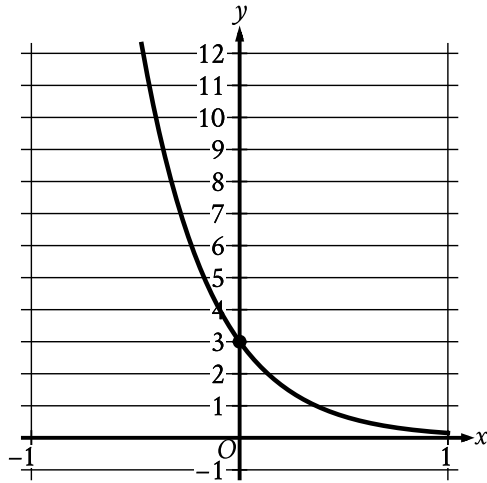
ID: 50418728



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 ?

#46

ID: 02c67921



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

#47

ID: de362c2f

The function f is defined by $f(x) = 5x^2$. What is the value of $f(8)$?

- A) 40
- B) 50
- C) 80
- D) 320

#48

ID: 044c1cb7

$$h(x) = x^2 - 3$$

Which table gives three values of x and their corresponding values of $h(x)$ for the given function h ?

A)

x	1	2	3
$h(x)$	4	5	6

B)

x	1	2	3
$h(x)$	-2	1	6

C)

x	1	2	3
$h(x)$	-1	1	3

D)

x	1	2	3
$h(x)$	-2	1	3

#49

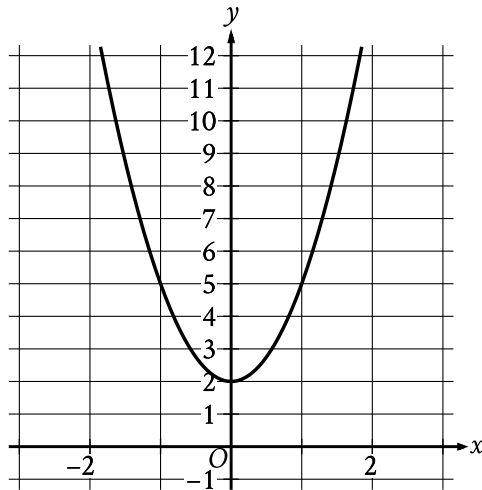
ID: 39652e93

The function f is defined by $f(x) = \frac{16}{x}$. What is the value of $f(x)$ when $x = 17$?

- A) $\frac{16}{17}$
- B) $\frac{17}{16}$
- C) 16
- D) 17

#50

ID: 782a8a53



The graph of the quadratic function $y = f(x)$ is shown. What is the vertex of the graph?

- A) (0 , - 2)
- B) (0 , - 3)
- C) (0 , 2)
- D) (0 , 3)

#51

ID: ee05c84e

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

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

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