ID: e312081b

$(x+5)+(2x-3)$

Which of the following is equivalent to the given expression?

A. $3x-2$

B. $3x+2$

C. $3x-8$

D. $3x+8$

ID: 8452c42b

Which expression is equivalent to $50x^2 + 5x^2$?

A. $250x^2$

B. $10x^2$

C. $45x^2$

D. $55x^2$

ID: 1d3fee25

Which of the following is equivalent to $3(x+5)-6$?

A. $3x-3$

B. $3x-1$

C. $3x+9$

D. $15x-6$

ID: 60fdb4d4

Which expression is equivalent to $(2x^2-4)-(-3x^2+2x-7)$?

A. $5x^2-2x+3$

B. $5x^2+2x-3$

C. $-x^2-2x-11$

D. $-x^2+2x-11$

ID: 4a5af623

Which expression is a factor of $2x^2 + 38x + 10$?

A. 2

B. $5x$

C. $38x$

D. $2x^2$

ID: 49efde89

The expression $2x^2 + ax$ is equivalent to $x(2x + 7)$ for some constant a. What is the value of a ?

A. 2

B. 3

C. 4

D. 7

ID: 9ed9f54d

Which of the following is equivalent to $2(x^2-x)+3(x^2-x)$?

A. $5x^2-5x$

B. $5x^2+5x$

C. $5x$

D. $5x^2$

ID: 294db8ec

Which of the following is equivalent to $2x^3+4$?

A. $4(x^3+4)$

B. $4(x^3+2)$

C. $2(x^3+4)$

D. $2(x^3+2)$

ID: 6e06a0a7

Which of the following expressions is equivalent to $2a^2(a+3)$?

A. $5a^3$

B. $8a^5$

C. $2a^3+3$

D. $2a^3+6a^2$

ID: df0ef054

$(2x^3 + 3x)(x^3 - 2x)$

Which of the following is equivalent to the expression above?

A. $x^3 + 5x$

B. $3x^3 + x$

C. $2x^6 - x^4 - 6x^2$

D. $3x^6 - x^4 - 6x^2$

ID: 127b2759

Which expression is equivalent to $8 + d^2 + 3$?

A. $d^2 + 24$

B. $d^2 + 11$

C. $d^2 + 5$

D. $d^2 - 11$

ID: fb96a5b3

Which of the following expressions is equivalent to $2(ab-3)+2$?

A. $2ab-1$

B. $2ab-4$

C. $2ab-5$

D. $2ab-8$

ID: e597050f

Which expression is equivalent to $9x + 6x + 2y + 3y$?

A. $3x + 5y$

B. $6x + 8y$

C. $12x + 8y$

D. $15x + 5y$

ID: 1e8d7183

Which expression is equivalent to $256w^2 - 676$?

A. $(16w - 26)(16w - 26)$

B. $(8w - 13)(8w + 13)$

C. $(8w - 13)(8w - 13)$

D. $(16w - 26)(16w + 26)$

ID: 0354c7de

$5x+15$

Which of the following is equivalent to the given expression?

A. $5(x+3)$

B. $5(x+10)$

C. $5(x+15)$

D. $5(x+20)$

ID: fd4b2aa0

Which expression is equivalent to $12x^3 - 5x^3$?

A. $7x^6$

B. $17x^3$

C. $7x^3$

D. $17x^6$

ID: 974d33dc

Which of the following expressions is equivalent to the sum of (r^3+5r^2+7) and $(r^2+8r+12)$?

A. r^5+13r^3+19

B. $2r^3+13r^2+19$

C. $r^3+5r^2+7r+12$

D. $r^3+6r^2+8r+19$

ID: d4d513ff

Which expression is equivalent to $12x + 27$?

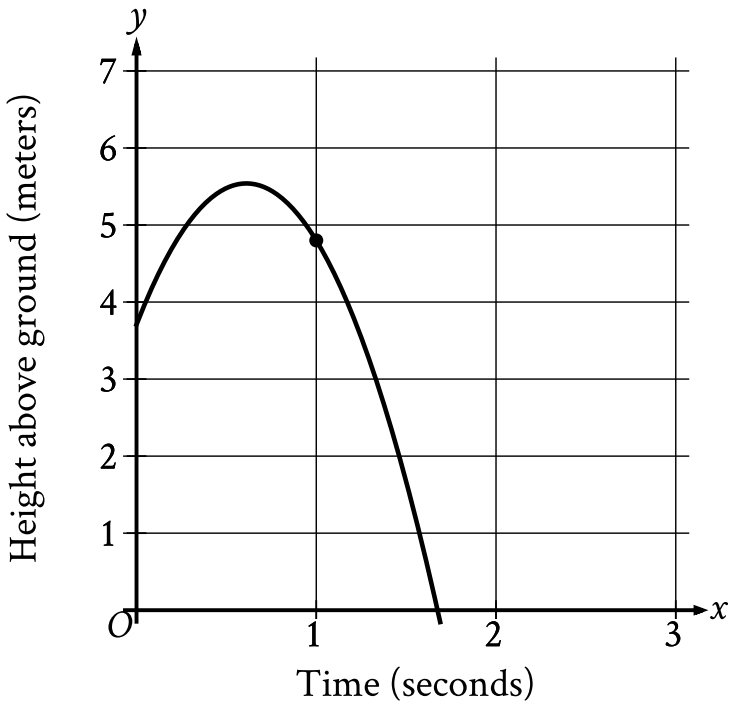
A. $12(9x + 1)$

B. $27(12x + 1)$

C. $3(4x + 9)$

D. $3(9x + 24)$

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?

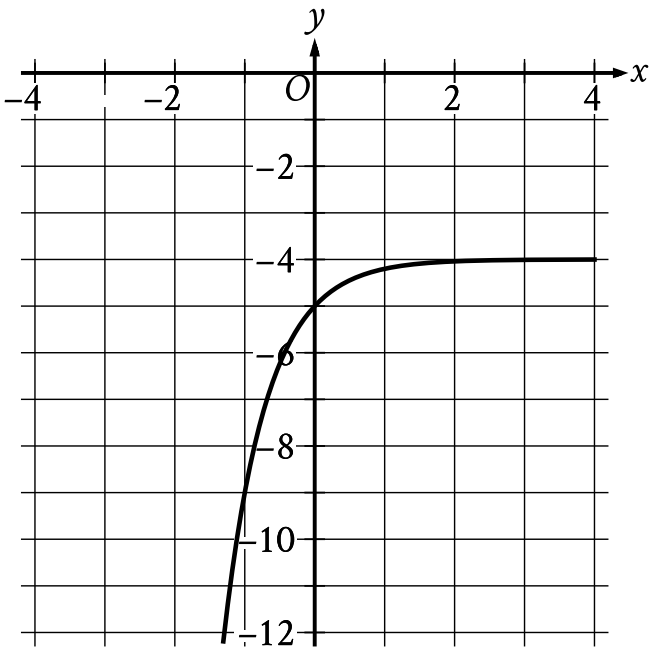
A. 1.0 second after being launched, the ball's height above ground is 4.8 meters.

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.

ID: 6abec9a8



What is the y-intercept of the graph shown?

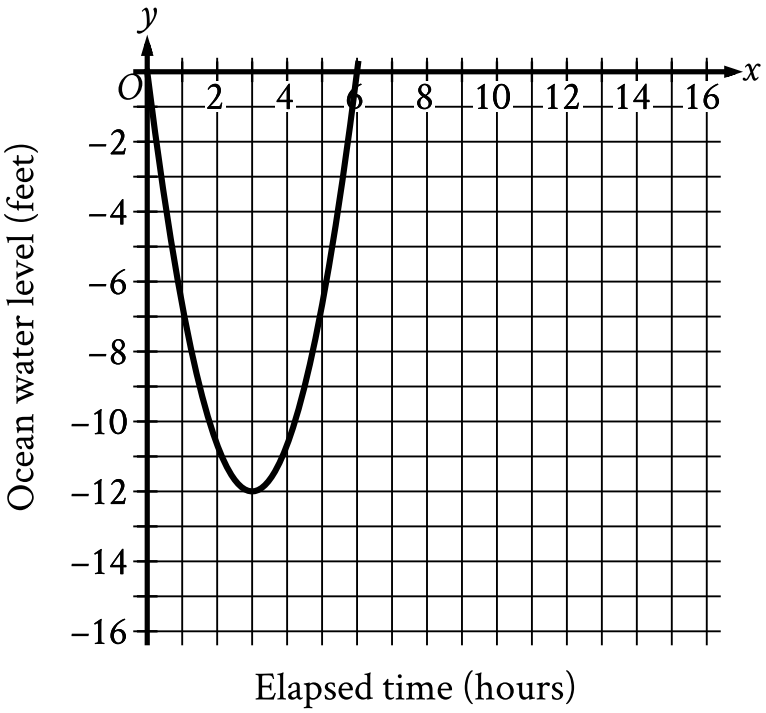
A. $(-1, -9)$

B. $(0, -5)$

C. $(0, -4)$

D. $(0, 0)$

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

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

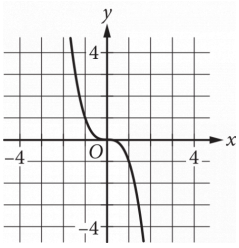
D. 76

ID: b39d74a0

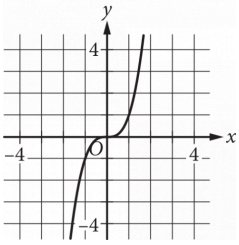
x	y
0	0
1	1
2	8
3	27

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 ?

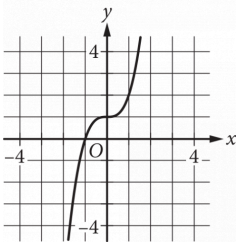
A.



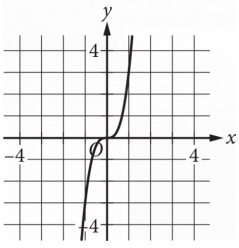
B.



C.



D.



ID: 837e9da7

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

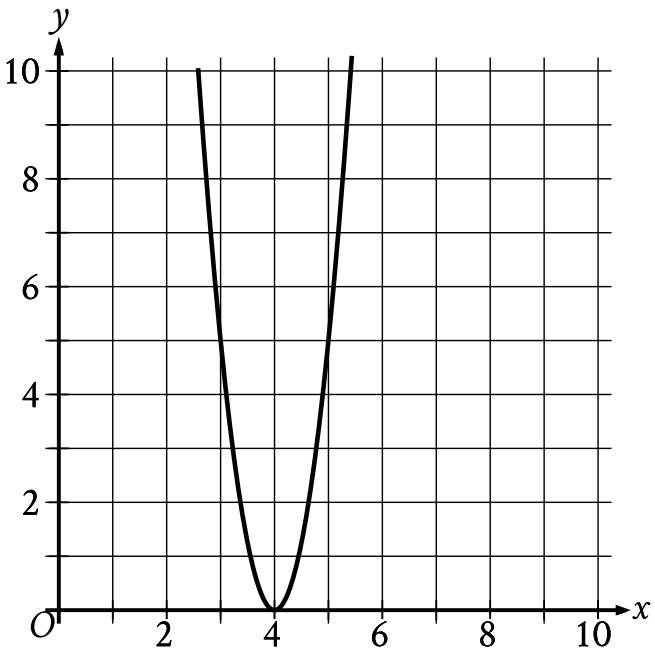
A. $\frac{1}{3}$

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

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

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

ID: e166aca6



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

A. $(-5, 0)$

B. $(5, 0)$

C. $(-4, 0)$

D. $(4, 0)$

ID: 5377d9cf

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

what is $f(-1)$?

A. −5

B. −2

C. 2

D. 5

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

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?

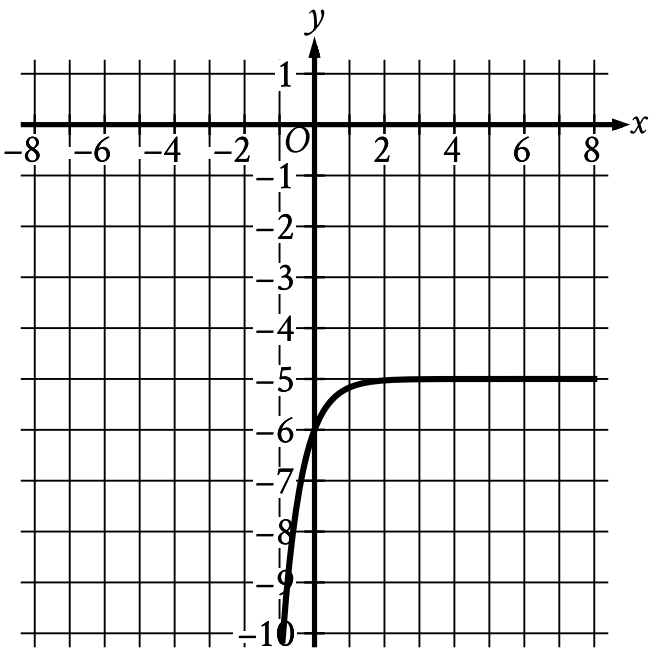
A. $h(n) = 22(0.22)^n$

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

C. $h(n) = 85$msup

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

ID: 7160cbb3



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

A. $(0, -6)$

B. $(-6, 0)$

C. $(0, 0)$

D. $(-5, -5)$

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?

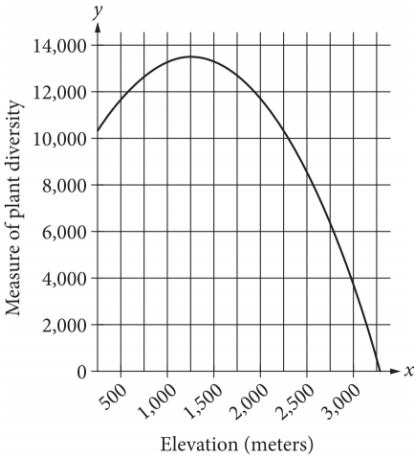
A. 5 years after the company started selling light bulbs online, its predicted annual revenue is approximately $518{,}748$ dollars.

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.

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

ID: 09f58996

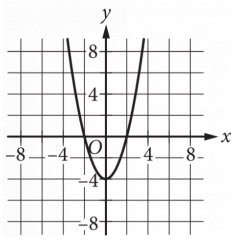
The function f is defined by $f(x) = 6 + \sqrt{x}$. What is the value of $f(36)$?

ID: d46da42c

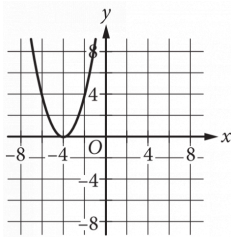
$f(x) = x^2 + 4$

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

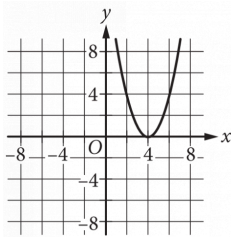
A.



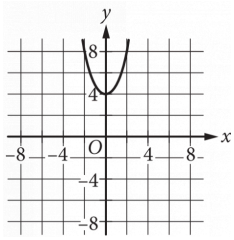
B.



C.



D.



ID: 79ba511a

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

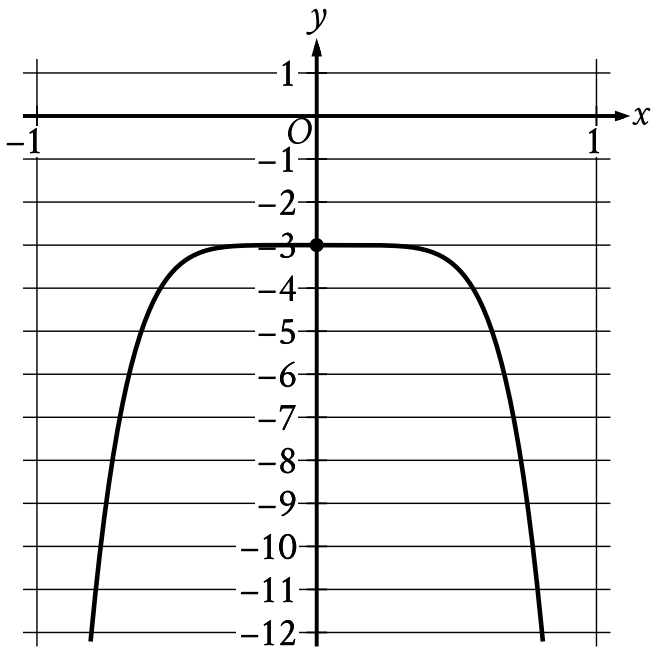
A. 20

B. 21

C. 23

D. 24

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?

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

ID: 3c95093c

$6x - 9y > 12$

Which of the following inequalities is equivalent to the inequality above?

A. $x - y > 2$

B. $2x - 3y > 4$

C. $3x - 2y > 4$

D. $3y - 2x > 2$

ID: 1e003284

$$x = 49$$
$$y = \sqrt{x} + 9$$

The graphs of the given equations intersect at the point (x, y) in the *xy*-plane. What is the value of y?

A. 16

B. 40

C. 81

D. 130

ID: ad03127d

$$6r = 7s + t$$

The given equation relates the variables r, s, and t. Which equation correctly expresses s in terms of r and t?

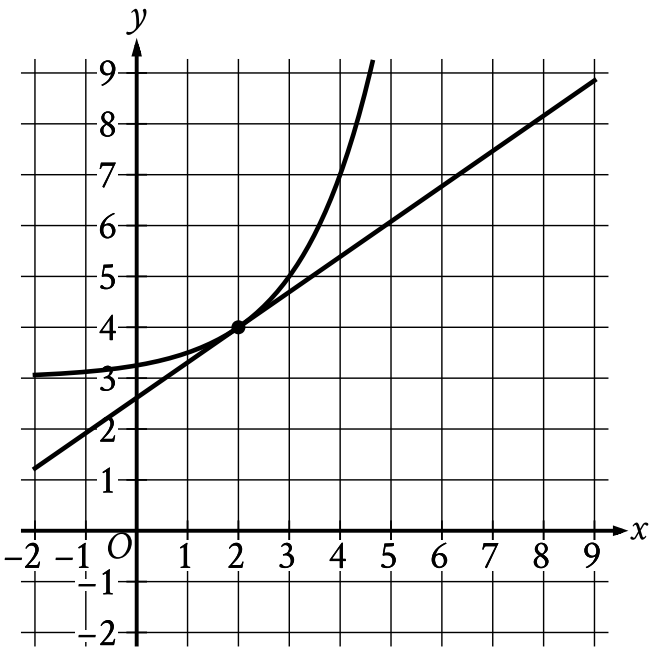
A. $s = 42r - t$

B. $s = 7(6r - t)$

C. $s = \frac{6}{7}r - t$

D. $s = \frac{6r - t}{7}$

ID: 4ca30186



The graph of a system of a linear equation and a nonlinear equation is shown. What is the solution (x, y) to this system?

A. $(0, 0)$

B. $(0, 2)$

C. $(2, 4)$

D. $(4, 0)$

ID: 3de7a7d7

Which of the following is a solution to the equation $2x^2 - 4 = x^2$?

A. 1

B. 2

C. 3

D. 4

ID: 70f98ab4

$$q - 29r = s$$

The given equation relates the positive numbers q, r, and s. Which equation correctly expresses q in terms of r and s?

A. $q = s - 29r$

B. $q = s + 29r$

C. $q = 29rs$

D. $q = -\frac{s}{29r}$

ID: 568aaf27

$x + y = 12$

$y = x^2$

If (x, y) is a solution to the system of equations above, which of the following is a possible value of x?

A. 0

B. 1

C. 2

D. 3

ID: b76a2815

$$P = \frac{W}{t}$$

The power P produced by a machine is represented by the equation above, where W is the work performed during an amount of time t. Which of the following correctly expresses W in terms of P and t?

A. $W = Pt$

B. $W = \frac{P}{t}$

C. $W = \frac{t}{P}$

D. $W = P + t$

ID: a67a439d

$$x + 7 = 10$$
$$(x + 7)^2 = y$$

Which ordered pair (x, y) is a solution to the given system of equations?

A. $(3, 100)$

B. $(3, 3)$

C. $(3, 10)$

D. $(3, 70)$

ID: ce940f80

$$\frac{x^2}{25} = 36$$

What is a solution to the given equation?

A. 6

B. 30

C. 450

D. 900

ID: c7789423

$$|x - 2| = 9$$

What is one possible solution to the given equation?

ID: eb268057

$x^2 = 64$

Which of the following values of x satisfies the given equation?

A. -8

B. 4

C. 32

D. 128

ID: 98f735f2

The total revenue from sales of a product can be calculated using the formula $T = PQ$, where T is the total revenue, P is the price of the product, and Q is the quantity of the product sold. Which of the following equations gives the quantity of product sold in terms of P and T?

A. $Q = \frac{P}{T}$

B. $Q = \frac{T}{P}$

C. $Q = PT$

D. $Q = T - P$

ID: fcb78856

$$b = 42cf$$

The given equation relates the positive numbers b, c, and f. Which equation correctly expresses c in terms of b and f?

A. $c = \frac{b}{42f}$

B. $c = \frac{b-42}{f}$

C. $c = 42bf$

D. $c = 42 - b - f$

ID: 4236c5a3

If $(x+5)^2=4$, which of the following is a possible value of x ?

A. 1

B. -1

C. -2

D. -3

ID: f11ffa93

$\sqrt{x+4} = 11$

What value of x satisfies the equation above?