ID: 371cbf6b

$$(ax+3)(5x^2-bx+4)=20x^3-9x^2-2x+12$$

The equation above is true for all x, where a and b are constants. What is the value of ab ?

A. 18

B. 20

C. 24

D. 40

ID: 40c09d66

If $\frac{\sqrt{x^5}}{\sqrt[3]{x^4}} = x^{\frac{a}{b}}$ for all positive values of x, what is the value of $\frac{a}{b}$?

ID: 34847f8a

$$\frac{2}{x-2}+\frac{3}{x+5}=\frac{rx+t}{(x-2)(x+5)}$$

The equation above is true for all $x > 2$, where *r* and *t* are positive constants. What is the value of rt ?

A. -20

B. 15

C. 20

D. 60

ID: 137cc6fd

$$\sqrt[5]{70n}\left(\sqrt[6]{70n}\right)^2$$

For what value of x is the given expression equivalent to $(70n)^{30x}$, where $n > 1$?

ID: ea6d05bb

The expression $(3x - 23)(19x + 6)$ is equivalent to the expression $ax^2 + bx + c$, where a, b, and c are constants. What is the value of b?

ID: d8789a4c

$$\frac{x^2-c}{x-b}$$

In the expression above, b and c are positive integers. If the expression is equivalent to $x+b$ and $x \neq b$, which of the following could be the value of c ?

A. 4

B. 6

C. 8

D. 10

ID: 5355c0ef

$$0.36x^2 + 0.63x + 1.17$$

The given expression can be rewritten as $a\left(4x^2 + 7x + 13\right)$, where a is a constant. What is the value of a?

ID: c81b6c57

In the expression $3(2x^2+px+8)-16x(p+4)$, p is a constant. This expression is equivalent to the expression $6x^2-155x+24$. What is the value of p ?

A. -3

B. 7

C. 13

D. 155

ID: 2c88af4d

The expression $\dfrac{x^{-2}y^{\frac{1}{2}}}{x^{\frac{1}{3}}y^{-1}}$, where $x > 1$ and $y > 1$, is equivalent to which of the following?

A. $\dfrac{\sqrt{y}}{\sqrt[3]{x^2}}$

B. $\dfrac{y\sqrt{y}}{\sqrt[3]{x^2}}$

C. $\dfrac{y\sqrt{y}}{x\sqrt{x}}$

D. $\dfrac{y\sqrt{y}}{x^2\sqrt[3]{x}}$

ID: 22fd3e1f

$$f(x) = x^3 - 9x$$
$$g(x) = x^2 - 2x - 3$$

Which of the following expressions is equivalent to $\frac{f(x)}{g(x)}$, for $x > 3$?

A. $\frac{1}{x+1}$

B. $\frac{x+3}{x+1}$

C. $\frac{x(x-3)}{x+1}$

D. $\frac{x(x+3)}{x+1}$

ID: a0b4103e

The expression $\frac{1}{3}x^2 - 2$ can be rewritten as $\frac{1}{3}(x-k)(x+k)$, where k is a positive constant. What is the value of k ?

A. 2

B. 6

C. $\sqrt{2}$

D. $\sqrt{6}$

ID: ad038c19

Which of the following is equivalent to $\left(a+\frac{b}{2}\right)^2$?

A. $a^2+\frac{b^2}{2}$

B. $a^2+\frac{b^2}{4}$

C. $a^2+\frac{ab}{2}+\frac{b^2}{2}$

D. $a^2+ab+\frac{b^2}{4}$

ID: 20291f47

Which expression is equivalent to $\frac{y+12}{x-8} + \frac{y(x-8)}{x^2y-8xy}$?

A. $\frac{xy+y+4}{x^3y-16x^2y+64xy}$

B. $\frac{xy+9y+12}{x^2y-8xy+x-8}$

C. $\frac{xy^2+13xy-8y}{x^2y-8xy}$

D. $\frac{xy^2+13xy-8y}{x^3y-16x^2y+64xy}$

ID: 12e7faf8

The equation $\dfrac{x^2+6x-7}{x+7}=ax+d$ is true for all $x \neq -7$, where *a* and *d* are integers. What is the value of $a+d$?

A. -6

B. -1

C. 0

D. 1

ID: 89fc23af

Which of the following expressions is equivalent to $\frac{x^2-2x-5}{x-3}$?

A. $x - 5 - \frac{20}{x-3}$

B. $x - 5 - \frac{10}{x-3}$

C. $x + 1 - \frac{8}{x-3}$

D. $x + 1 - \frac{2}{x-3}$

ID: 911c415b

$$(7532+100y^2)+10(10y^2-110)$$

The expression above can be written in the form ay^2+b, where a and b are constants. What is the value of $a+b$?

ID: b74f2feb

The expression $6\sqrt[5]{3^5 x^{45}} \cdot \sqrt[8]{2^8 x}$ is equivalent to ax^b, where a and b are positive constants and $x > 1$. What is the value of $a + b$?

ID: f89e1d6f

If $a = c + d$, which of the following is equivalent to the expression $x^2 - c^2 - 2cd - d^2$?

A. $(x + a)^2$

B. $(x - a)^2$

C. $(x + a)(x - a)$

D. $x^2 - ax - a^2$

ID: e117d3b8

If *a* and *c* are positive numbers, which of the following is equivalent to $\sqrt{(a+c)^3} \cdot \sqrt{a+c}$?

A. $a+c$

B. a^2+c^2

C. $a^2+2ac+c^2$

D. a^2c^2

ID: fc3d783a

In the xy-plane, a line with equation $2y = 4.5$ intersects a parabola at exactly one point. If the parabola has equation $y = -4x^2 + bx$, where b is a positive constant, what is the value of b?

ID: 4661e2a9

$$x - y = 1$$
$$x + y = x^2 - 3$$

Which ordered pair is a solution to the system of equations above?

A. $(1+\sqrt{3}, \sqrt{3})$

B. $(\sqrt{3}, -\sqrt{3})$

C. $(1+\sqrt{5}, \sqrt{5})$

D. $(\sqrt{5}, -1+\sqrt{5})$

ID: f65288e8

$$\frac{1}{x^2+10x+25}=4$$

If x is a solution to the given equation, which of the following is a possible value of $x+5$?

A. $\frac{1}{2}$

B. $\frac{5}{2}$

C. $\frac{9}{2}$

D. $\frac{11}{2}$

ID: f2f3fa00

During a 5-second time interval, the average acceleration a, in meters per second squared, of an object with an initial velocity of 12 meters per second is defined by the equation $a = \frac{v_f - 12}{5}$, where v_f is the final velocity of the object in meters per second. If the equation is rewritten in the form $v_f = xa + y$, where x and y are constants, what is the value of x ?

ID: 6ce95fc8

$$2x^2 - 2 = 2x + 3$$

Which of the following is a solution to the equation above?

A. 2

B. $1 - \sqrt{11}$

C. $\frac{1}{2} + \sqrt{11}$

D. $\frac{1 + \sqrt{11}}{2}$

ID: 1fe32f7d

$$-x^2 + bx - 676 = 0$$

In the given equation, b is a positive integer. The equation has no real solution. What is the greatest possible value of b?

ID: c303ad23

If $3x^2 - 18x - 15 = 0$, what is the value of $x^2 - 6x$?

ID: 7bd10ef3

$$2x^2 - 4x = t$$

In the equation above, t is a constant. If the equation has no real solutions, which of the following could be the value of t ?

A. -3

B. -1

C. 1

D. 3

ID: 17d0e87d

$$\frac{14x}{7y} = 2\sqrt{w+19}$$

The given equation relates the distinct positive real numbers w, x, and y. Which equation correctly expresses w in terms of x and y?

A. $w = \sqrt{\frac{x}{y}} - 19$

B. $w = \sqrt{\frac{28x}{14y}} - 19$

C. $w =$ msup $- 19$

D. $w =$ msup $- 19$

ID: 66bce0c1

$$\sqrt{2x+6}+4=x+3$$

What is the solution set of the equation above?

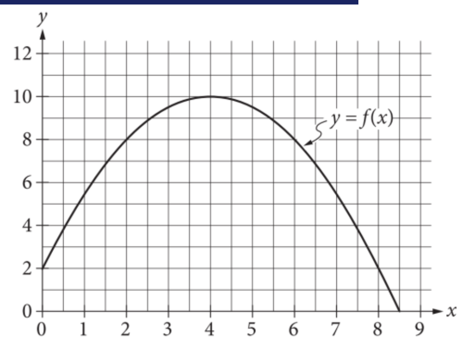
A. $\{-1\}$

B. $\{5\}$

C. $\{-1, 5\}$

D. $\{0, -1, 5\}$

ID: 97e50fa2



The graph of the function *f*, defined by $f(x) = -\frac{1}{2}(x-4)^2 + 10$, is shown in the *xy*-plane above. If the function *g* (not shown) is defined by $g(x) = -x + 10$, what is one possible value of *a* such that $f(a) = g(a)$?

ID: 3d12b1e0

$$-16x^2 - 8x + c = 0$$

In the given equation, c is a constant. The equation has exactly one solution. What is the value of c?

ID: 71014fb1

$$(x-1)^2 = -4$$

How many distinct real solutions does the given equation have?

A. Exactly one

B. Exactly two

C. Infinitely many

D. Zero

ID: e9349667

$$y = x^2 + 2x + 1$$
$$x + y + 1 = 0$$

If (x_1, y_1) and (x_2, y_2) are the two solutions to the system of equations above, what is the value of $y_1 + y_2$?

A. -3

B. -2

C. -1

D. 1

ID: b03adde3

If $u-3=\frac{6}{t-2}$, what is t in terms of u ?

A. $t=\frac{1}{u}$

B. $t=\frac{2u+9}{u}$

C. $t=\frac{1}{u-3}$

D. $t=\frac{2u}{u-3}$

ID: 1ce9ffcd

$$-9x^2 + 30x + c = 0$$

In the given equation, c is a constant. The equation has exactly one solution. What is the value of c?

A. 3

B. 0

C. -25

D. -53

ID: 30281058

In the *xy*-plane, the graph of $y = x^2 - 9$ intersects line *p* at $(1, a)$ and $(5, b)$, where *a* and *b* are constants. What is the slope of line *p* ?

A. 6

B. 2

C. -2

D. -6

ID: 5910bfff

$$D = T - \frac{9}{25}(100 - H)$$

The formula above can be used to approximate the dew point *D*, in degrees Fahrenheit, given the temperature *T*, in degrees Fahrenheit, and the relative humidity of *H* percent, where $H > 50$. Which of the following expresses the relative humidity in terms of the temperature and the dew point?

A. $H = \frac{25}{9}(D - T) + 100$

B. $H = \frac{25}{9}(D - T) - 100$

C. $H = \frac{25}{9}(D + T) + 100$

D. $H = \frac{25}{9}(D + T) - 100$

ID: 1697ffcf

In the *xy*-plane, the graph of $y = 3x^2 - 14x$ intersects the graph of $y = x$ at the points $(0, 0)$ and (a, a). What is the value of *a* ?

ID: 5edc8c98

$$64x^2 - (16a + 4b)x + ab = 0$$

In the given equation, a and b are positive constants. The sum of the solutions to the given equation is $k(4a + b)$, where k is a constant. What is the value of k?

ID: ff2e5c76

$$x^2 - 40x - 10 = 0$$

What is the sum of the solutions to the given equation?

A. 0

B. 5

C. 10

D. 40

ID: 2c5c22d0

$$y = x^2 + 3x - 7$$
$$y - 5x + 8 = 0$$

How many solutions are there to the system of equations above?

A. There are exactly 4 solutions.

B. There are exactly 2 solutions.

C. There is exactly 1 solution.

D. There are no solutions.

ID: fc3dfa26

$$\frac{4x^2}{x^2-9} - \frac{2x}{x+3} = \frac{1}{x-3}$$

What value of *x* satisfies the equation above?

A. -3

B. $-\frac{1}{2}$

C. $\frac{1}{2}$

D. 3

ID: a54753ca

In the *xy*-plane, the graph of the equation $y = -x^2 + 9x - 100$ intersects the line $y = c$ at exactly one point. What is the value of c?

A. $-\frac{481}{4}$

B. -100

C. $-\frac{319}{4}$

D. $-\frac{9}{2}$

ID: 58b109d4

$$x^2 + y + 7 = 7$$
$$20x + 100 - y = 0$$

The solution to the given system of equations is (x, y). What is the value of x?

ID: 91e7ea5e

$h(x) = 2(x - 4)^2 - 32$

The quadratic function h is defined as shown. In the xy-plane, the graph of $y = h(x)$ intersects the x-axis at the points $(0,0)$ and $(t,0)$, where t is a constant.

What is the value of t ?

A. 1

B. 2

C. 4

D. 8

ID: a9084ca4

$$f(x) = 9{,}000(0.66)^x$$

The given function f models the number of advertisements a company sent to its clients each year, where x represents the number of years since 1997, and $0 \leq x \leq 5$. If $y = f(x)$ is graphed in the *xy*-plane, which of the following is the best interpretation of the *y*-intercept of the graph in this context?

A. The minimum estimated number of advertisements the company sent to its clients during the 5 years was $1{,}708$.

B. The minimum estimated number of advertisements the company sent to its clients during the 5 years was $9{,}000$.

C. The estimated number of advertisements the company sent to its clients in 1997 was $1{,}708$.

D. The estimated number of advertisements the company sent to its clients in 1997 was $9{,}000$.

ID: b8f13a3a

Function f is defined by $f(x) = -a^x + b$, where a and b are constants. In the *xy*-plane, the graph of $y = f(x) - 12$ has a *y*-intercept at $\left(0, -\frac{75}{7}\right)$. The product of a and b is $\frac{320}{7}$. What is the value of a?

ID: 7902bed0

A machine launches a softball from ground level. The softball reaches a maximum height of 51.84 meters above the ground at 1.8 seconds and hits the ground at 3.6 seconds. Which equation represents the height above ground h, in meters, of the softball t seconds after it is launched?

A. $h = -t^2 + 3.6$

B. $h = -t^2 + 51.84$

C. $h = -16\text{msup} - 3.6$

D. $h = -16\text{msup} + 51.84$

ID: 4a0d0399

The function f is defined by $f(x) = a^x + b$, where a and b are constants. In the xy-plane, the graph of $y = f(x)$ has an x-intercept at $(2, 0)$ and a y-intercept at $(0, -323)$. What is the value of b?

ID: 9654add7

$f(x) = -500x^2 + 25{,}000x$

The revenue $f(x)$, in dollars, that a company receives from sales of a product is given by the function f above, where x is the unit price, in dollars, of the product. The graph of $y = f(x)$ in the xy-plane intersects the x-axis at 0 and a. What does a represent?

A. The revenue, in dollars, when the unit price of the product is $0

B. The unit price, in dollars, of the product that will result in maximum revenue

C. The unit price, in dollars, of the product that will result in a revenue of $0

D. The maximum revenue, in dollars, that the company can make

ID: 263f9937

Growth of a Culture of Bacteria

Day	Number of bacteria per milliliter at end of day
1	2.5×10^5
2	5.0×10^5
3	1.0×10^6

A culture of bacteria is growing at an exponential rate, as shown in the table above. At this rate, on which day would the number of bacteria per milliliter reach 5.12×10^8

?

A. Day 5

B. Day 9

C. Day 11

D. Day 12

ID: 271ffad7

A quadratic function models a projectile's height, in meters, above the ground in terms of the time, in seconds, after it was launched. The model estimates that the projectile was launched from an initial height of 7 meters above the ground and reached a maximum height of 51.1 meters above the ground 3 seconds after the launch. How many seconds after the launch does the model estimate that the projectile will return to a height of 7 meters?

A. 3

B. 6

C. 7

D. 9

ID: a45ffacb

Function f is defined by $f(x) = -a^x + b$, where a and b are constants. In the *xy*-plane, the graph of $y = f(x) - 15$ has a *y*-intercept at $\left(0, -\frac{99}{7}\right)$. The product of a and b is $\frac{65}{7}$. What is the value of a?

ID: 18e35375

$$f(x) = (x - 14)(x + 19)$$

The function f is defined by the given equation. For what value of x does $f(x)$ reach its minimum?

A. -266

B. -19

C. $-\frac{33}{2}$

D. $-\frac{5}{2}$

ID: ce579859

A model estimates that at the end of each year from 2015 to 2020, the number of squirrels in a population was 150% more than the number of squirrels in the population at the end of the previous year. The model estimates that at the end of 2016, there were 180 squirrels in the population. Which of the following equations represents this model, where n is the estimated number of squirrels in the population t years after the end of 2015 and $t \leq 5$?

A. $n = 72$msup

B. $n = 72$msup

C. $n = 180$msup

D. $n = 180$msup

ID: 2f51abc2

$$f(x) = |59 - 2x|$$

The function f is defined by the given equation. For which of the following values of k does $f(k) = 3k$?

A. $\frac{59}{5}$

B. $\frac{59}{2}$

C. $\frac{177}{5}$

D. 59

ID: 9afe2370

The population P of a certain city y years after the last census is modeled by the equation below, where r is a constant and P_0 is the population when $y = 0$.

$$P = P_0(1 + r)^y$$

If during this time the population of the city decreases by a fixed percent each year, which of the following must be true?

A. $r < -1$

B. $-1 < r < 0$

C. $0 < r < 1$

D. $r > 1$

ID: 1f353a9e

$$f(t) = 8{,}000(0.65)^t$$

The given function f models the number of coupons a company sent to their customers at the end of each year, where t represents the number of years since the end of 1998, and $0 \leq t \leq 5$. If $y = f(t)$ is graphed in the ty-plane, which of the following is the best interpretation of the y-intercept of the graph in this context?

A. The minimum estimated number of coupons the company sent to their customers during the 5 years was $1{,}428$.

B. The minimum estimated number of coupons the company sent to their customers during the 5 years was $8{,}000$.

C. The estimated number of coupons the company sent to their customers at the end of 1998 was $1{,}428$.

D. The estimated number of coupons the company sent to their customers at the end of 1998 was $8{,}000$.

ID: 0121a235

x	$p(x)$
-2	5
-1	0
0	-3
1	-1
2	0

The table above gives selected values of a polynomial function p. Based on the values in the table, which of the following must be a factor of p ?

A. $(x-3)$

B. $(x+3)$

C. $(x-1)(x+2)$

D. $(x+1)(x-2)$

ID: 70753f99

The function *f* is defined by $f(x) = (x+3)(x+1)$. The graph of *f* in the *xy*-plane is a parabola. Which of the following intervals contains the *x*-coordinate of the vertex of the graph of *f* ?

A. $-4 < x < -3$

B. $-3 < x < 1$

C. $1 < x < 3$

D. $3 < x < 4$

ID: 58dcc59f

A landscaper is designing a rectangular garden. The length of the garden is to be 5 feet longer than the width. If the area of the garden will be 104 square feet, what will be the length, in feet, of the garden?

ID: 84dd43f8

For the function f, $f(0) = 86$, and for each increase in x by 1, the value of $f(x)$ decreases by 80%. What is the value of $f(2)$?

ID: 59d1f4b5

$$M = 1{,}800(1.02)^t$$

The equation above models the number of members, M, of a gym t years after the gym opens. Of the following, which equation models the number of members of the gym q quarter years after the gym opens?

A. $M = 1{,}800(1.02)^{\frac{q}{4}}$

B. $M = 1{,}800(1.02)^{4q}$

C. $M = 1{,}800(1.005)^{4q}$

D. $M = 1{,}800(1.082)^{q}$

ID: 01668cd6

The functions f and g are defined by the given equations, where $x \geq 0$. Which of the following equations displays, as a constant or coefficient, the maximum value of the function it defines, where $x \geq 0$?

I. $f(x) = 33(0.4)^{x+3}$

II. $g(x) = 33(0.16)(0.4)^{x-2}$

A. I only

B. II only

C. I and II

D. Neither I nor II

ID: ef926848

Square P has a side length of x inches. Square Q has a perimeter that is 176 inches greater than the perimeter of square P. The function f gives the area of square Q, in square inches. Which of the following defines f?

A. $f(x) = (x + 44)^2$

B. $f(x) = (x + 176)^2$

C. $f(x) = (176x + 44)^2$

D. $f(x) = (176x + 176)^2$

ID: 635f54ee

The surface area of a cube is $6\left(\frac{a}{4}\right)^2$, where *a* is a positive constant. Which of the following gives the perimeter of one face of the cube?

A. $\frac{a}{4}$

B. a

C. $4a$

D. $6a$

ID: de39858a

The function h is defined by $h\left(x\right)=a^{x}+b$, where a and b are positive constants. The graph of $y=h\left(x\right)$ in the xy-plane passes through the points $(0, 10)$ and $\left(-2, \frac{325}{36}\right)$. What is the value of ab?

A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. 54

D. 60

ID: 1178f2df

x	y
21	-8
23	8
25	-8

The table shows three values of x and their corresponding values of y, where $y = f(x) + 4$ and f is a quadratic function. What is the *y*-coordinate of the *y*-intercept of the graph of $y = f(x)$ in the *xy*-plane?

ID: 84e8cc72

A quadratic function models the height, in feet, of an object above the ground in terms of the time, in seconds, after the object is launched off an elevated surface. The model indicates the object has an initial height of 10 feet above the ground and reaches its maximum height of $1{,}034$ feet above the ground 8 seconds after being launched. Based on the model, what is the height, in feet, of the object above the ground 10 seconds after being launched?

A. 234

B. 778

C. 970

D. $1{,}014$

ID: 4b642eef

The total distance *d*, in meters, traveled by an object moving in a straight line can be modeled by a quadratic function that is defined in terms of *t*, where *t* is the time in seconds. At a time of 10.0 seconds, the total distance traveled by the object is 50.0 meters, and at a time of 20.0 seconds, the total distance traveled by the object is 200.0 meters. If the object was at a distance of 0 meters when $t = 0$, then what is the total distance traveled, in meters, by the object after 30.0 seconds?

ID: 9f2ecade

$$h(x) = x^3 + ax^2 + bx + c$$

The function h is defined above, where a, b, and c are integer constants. If the zeros of the function are -5, 6, and 7, what is the value of c ?

ID: 04bbce67

$$f(x) = (x+7)^2 + 4$$

The function f is defined by the given equation. For what value of x does $f(x)$ reach its minimum?

ID: 6f5540a5

Kao measured the temperature of a cup of hot chocolate placed in a room with a constant temperature of 70 degrees Fahrenheit (°F). The temperature of the hot chocolate was 185°F at 6:00 p.m. when it started cooling. The temperature of the hot chocolate was 156°F at 6:05 p.m. and 135°F at 6:10 p.m. The hot chocolate's temperature continued to decrease. Of the following functions, which best models the temperature $T(m)$, in degrees Fahrenheit, of Kao's hot chocolate m minutes after it started cooling?

A. $T(m) = 185(1.25)^m$

B. $T(m) = 185(0.85)^m$

C. $T(m) = (185 - 70)(0.75)^{\frac{m}{5}}$

D. $T(m) = 70 + 115(0.75)^{\frac{m}{5}}$

ID: 1fe10d97

$$p(t) = 90{,}000(1.06)^t$$

The given function p models the population of Lowell t years after a census. Which of the following functions best models the population of Lowell m months after the census?

A. $r(m) = \frac{90{,}000}{12}(1.06)^m$

B. $r(m) = 90{,}000\left(\frac{1.06}{12}\right)^m$

C. $r(m) = 90{,}000\left(\frac{1.06}{12}\right)^{\frac{m}{12}}$

D. $r(m) = 90{,}000(1.06)^{\frac{m}{12}}$

ID: b73ee6cf

The population of a town is currently 50,000, and the population is estimated to increase each year by 3% from the previous year. Which of the following equations can be used to estimate the number of years, *t*, it will take for the population of the town to reach 60,000 ?

A. $50{,}000 = 60{,}000(0.03)^t$

B. $50{,}000 = 60{,}000(3)^t$

C. $60{,}000 = 50{,}000(0.03)^t$

D. $60{,}000 = 50{,}000(1.03)^t$

ID: 08d03fe4

For the exponential function f, the value of $f(1)$ is k, where k is a constant. Which of the following equivalent forms of the function f shows the value of k as the coefficient or the base?

A. $f(x)=50(2)^{x+1}$

B. $f(x)=80(2)^{x}$

C. $f(x)=128(2)^{x-1}$

D. $f(x)=205(2)^{x-2}$

ID: 7eed640d

$$h(x) = -16x^2 + 100x + 10$$

The quadratic function above models the height above the ground *h*, in feet, of a projectile *x* seconds after it had been launched vertically. If $y = h(x)$ is graphed in the *xy*-plane, which of the following represents the real-life meaning of the positive *x*-intercept of the graph?

A. The initial height of the projectile

B. The maximum height of the projectile

C. The time at which the projectile reaches its maximum height

D. The time at which the projectile hits the ground

ID: 43926bd9

x	$f(x)$
1	a
2	a^5
3	a^9

For the exponential function *f*, the table above shows several values of *x* and their corresponding values of $f(x)$, where *a* is a constant greater than 1. If *k* is a constant and $f(k) = a^{29}$, what is the value of *k* ?

ID: 4d7064a6

$$f(x) = (x - 10)(x + 13)$$

The function f is defined by the given equation. For what value of x does $f(x)$ reach its minimum?

A. -130

B. -13

C. $-\frac{23}{2}$

D. $-\frac{3}{2}$

ID: a8ae0d22

Two variables, x and y, are related such that for each increase of 1 in the value of x, the value of y increases by a factor of 4. When $x = 0$, $y = 200$. Which equation represents this relationship?

A. $y = 4$msup

B. $y = 4$msup

C. $y = 200$msup

D. $y = 200$msup

ID: a7711fe8

What is the minimum value of the function *f* defined by $f(x)=(x-2)^2-4$?

A. -4

B. -2

C. 2

D. 4

ID: 1a722d7d

Let the function p be defined as $p(x)=\dfrac{(x-c)^2+160}{2c}$, where c is a constant. If $p(c)=10$, what is the value of $p(12)$?

A. 10.00

B. 10.25

C. 10.75

D. 11.00