Question ID 4b642eef

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■■

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?

Question ID 3e9cc0c2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■□

ID: 3e9cc0c2

Which of the following is equivalent to $(1-p)(1+p+p^2+p^3+p^4+p^5+p^6)$?

A. $1-p^8$

B. $1-p^7$

C. $1-p^6$

D. $1-p^5$

Question ID 2c5c22d0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	■■■

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.

Question ID 7348f046

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■□

ID: 7348f046

$(2x+3)-(x-7)$

Which of the following is equivalent to the given expression?

A. $x-4$

B. $3x-4$

C. $x+10$

D. $2x^2+21$

Question ID 928498f3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	■■□

ID: 928498f3

$6x^2+5x-7=0$

What are the solutions to the given equation?

A. $\frac{-5\pm\sqrt{25+168}}{12}$

B. $\frac{-6\pm\sqrt{25+168}}{12}$

C. $\frac{-5\pm\sqrt{36-168}}{12}$

D. $\frac{-6\pm\sqrt{36-168}}{12}$

Question ID b47419f4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■□

ID: b47419f4

$$\left(\frac{1}{2}x+3\right)-\left(\frac{2}{3}x-5\right)$$

Which of the following is equivalent to the expression above?

A. $-\frac{1}{6}x+8$

B. $-\frac{1}{6}x-2$

C. $-\frac{1}{3}x^2+\frac{1}{2}x+15$

D. $-\frac{1}{3}x^2-\frac{9}{2}x-15$

Question ID fc3dfa26

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	■■■

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

Question ID 8838a672

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■□

ID: 8838a672

$(4x^3-5x^2+3)-(6x^3+2x^2-x)$

Which of the following expressions is equivalent to the expression above?

A. $-10x^3-3x^2+x+3$

B. $-2x^3-7x^2+x+3$

C. $-2x^3-3x^2+x+3$

D. $10x^3-7x^2-x+3$

Question ID eb268057

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	■□□

ID: eb268057

$x^2 = 64$

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

A. -8

B. 4

C. 32

D. 128

Question ID 9f2ecade

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■■

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?

Question ID 0b3d25c5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■□

ID: 0b3d25c5

Which of the following is equivalent to $\sqrt[4]{x^2+8x+16}$, where $x > 0$?

A. $(x+4)^4$

B. $(x+4)^2$

C. $(x+4)$

D. $(x+4)^{\frac{1}{2}}$

Question ID e117d3b8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■■■

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

Question ID 98f735f2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear equations in one variable and systems of equations in two variables	■□□

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. $Q = T - P$

Question ID 6f5540a5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■■

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

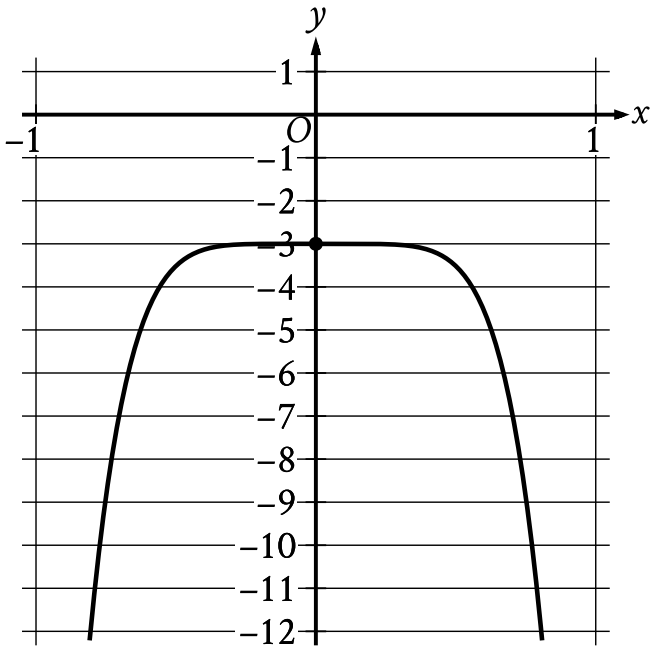
C. $T(m) = (185 - 70)(0.75)^{\frac{m}{5}}$

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

Question ID 50418728

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■□□

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?

Question ID f5e8ccfl

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■□

ID: f5e8ccfl

$f(x) = (x+4)(x-1)(2x-3)$

The function f is defined above. Which of the following is NOT an x-intercept of the graph of the function in the xy-plane?

A. $(-4, 0)$

B. $\left(-\frac{2}{3}, 0\right)$

C. $(1, 0)$

D. $\left(\frac{3}{2}, 0\right)$

Question ID fb96a5b3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■□□

ID: fb96a5b3

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

A. $2ab-1$

B. $2ab-4$

C. $2ab-5$

D. $2ab-8$

Question ID b73ee6cf

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■■

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

Question ID e597050f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Equivalent expressions	■□□

ID: e597050f

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

A. $3x + 5y$

B. $6x + 8y$

C. $12x + 8y$

D. $15x + 5y$

Question ID 7eed640d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Advanced Math	Nonlinear functions	■■■

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