SAT Prep

Advanced Math 2

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CONCEPTS

QUESTIONS

1. What is the y-intercept of the function $y = x^2 - 4x + 4$?

QUESTIONS

2. If $f(x) = 3x^2 – 2x + 4$, then $f(–2)$ is

A. $– 2$

B. 20

C. $– 4$

D. 12

QUESTIONS

3. If $f(x) = 4x - 5$ and $g(x) = 3^x$, then $f(g(2)) =$

A. 27

B. 9

C. 3

D. 31

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QUESTIONS

4. If $f(g(x)) = 4x^2 - 8x$ and $f(x) = x^2 - 4$, then $g(x)$ could be equal to?

A. $2x - 2$

B. x

C. $4x$

D. $4 - x$

QUESTIONS

5. Given that $f(x) = 3x^2 - 4x + 1$ and $g(x) = 3x^2 - 3$, then the $\frac{f(x)}{g(x)}$ is undefined for which values of x?

A. No values

B. 0

C. 3

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

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QUESTIONS

6. Given that f(x) = $\sqrt{x-10}$, then for what values of x is the function defined?

A. $x > 10$

B. $x \leq 10$

C. $x < 10$

D. $x \geq 10$

QUESTIONS

7. Which of the following equations has a vertex of $(3, -3)$?

A. $y = 5(x - 3)^2 - 3$

B. $y = 5(x + 3)^2 - 3$

C. $y = 5(x - 3)^2 + 3$

D. $y = 5(x + 3)^2 + 3$

QUESTIONS

8. $h(t) = -16t^2 + 64t$

The equation above expresses the approximate height, h, in feet, of a rocket t seconds after it is launched upwards from the ground until it hits the ground again. After how many seconds will the rocket reach its highest point?

A. 2

B. 4

C. 8

D. 16

QUESTIONS

9. The equation $y = (x – 4)(x + 8)$ represents a parabola in the xy-plane. Which of the following is an equivalent form of this equation that shows the coordinates of the vertex of this parabola as constants or coefficients?

A. $y = (x + 4)^2 – 8$

B. $y = (x – 4)^2 + 8$

C. $y = (x + 2)^2 – 36$

D. $y = (x + 2)^2 + 36$

QUESTIONS

10.

Table A		Table B	
x	$f(x)$	x	$g(x)$
-1	2	3	-1
3	6	5	3
5	5	6	2

Table A above shows values that satisfy the function f(x), and Table B shows values that satisfy the function g(x). What is the value of f(g(3)) ?

A. -1

B. 2

C. 3

D. 5

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QUESTIONS

11. What is the sum of all values that satisfy the equation $3x^2 + 30x + 15 = 0$?

A. -10

B. $-4\sqrt{5}$

C. $4\sqrt{5}$

D. 10

QUESTIONS

12. The functions f, g, and h are defined by the equations $f(x) = x^2$, $g(x) = x$, and $h(x) = \sqrt{x}$. Which of the following must be true?

A. $h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right)$

B. $h\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$

C. $g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$

D. $f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right)$

QUESTIONS

13. If f(x-2) = 3x + n, where n is a constant, and f(2) = 0, then f(n) =

A. –42

B. –18

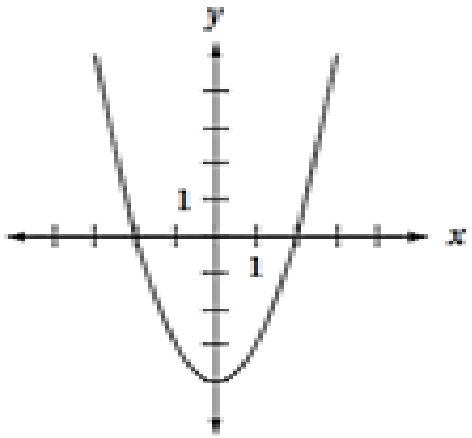
C. 6

D. 12

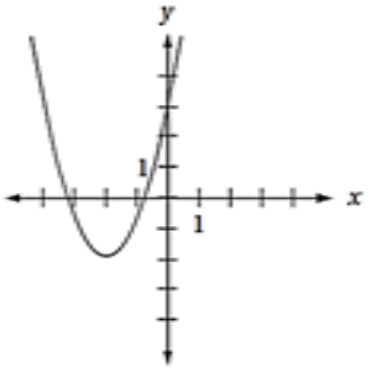
QUESTIONS

14. If $m > 1$, which of the following could be the graph of $y = -(x + m)^2 + m$ in the xy-plane?

A.



B.



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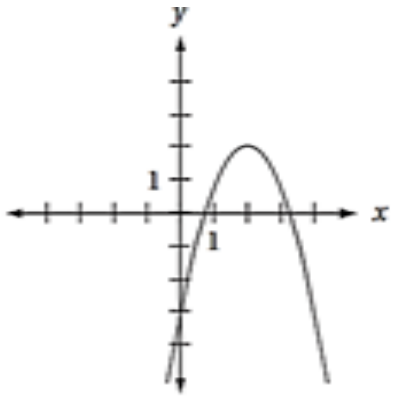
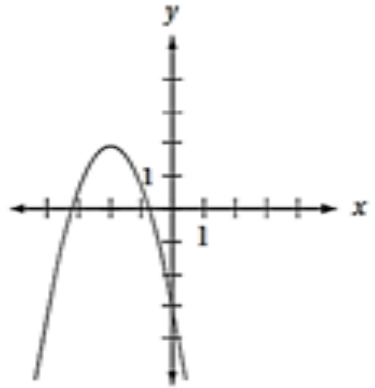


D.



QUESTIONS

15. In the linear function *h*, *h(-2)* = 17 and *h(2)* = - 3. Which equation defines *h*?

A. h(x) = 5x – 7

B. h(x) = 3x – 9

C. h(x) = -7x + 3

D. h(x) = -5x + 7

QUESTIONS

16. The function f is defined by the equation $f(x) = x - x^2$. Which of the following represents a quadratic with no real zeros?

A. $f(x) + \frac{1}{2}$

B. $f(x) - \frac{1}{2}$

C. $f\left(\frac{x}{2}\right)$

D. $f\left(x - \frac{1}{2}\right)$

QUESTIONS

17. $g(x) = (x - 10)(x + 13)$

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

A. -130

B. -13

C. -23/2

D. -3/2

QUESTIONS

18. In the xy-plane, a parabola has vertex (3,-7) and intersects the x-axis at two points. If the equation of the parabola is written in the form $y = ax^2 + bx + c$, where a, b, and c are constants, which of the following could be the value of a + b + c ?

A. -20

B. -9

C. -7

D. -3

QUESTIONS

19. In the xy-plane, the function $f(x) = -9x^2 + 30x + c$, where c is a constant. If f(x) has exactly one zero, what is the value of c ?

A. -53

B. -25

C. 0

D. 3

QUESTIONS

20. The function $A(x) = 5x^2$ gives the area of a triangle, in square cm (cm^2). If one of its base is *x* cm and its corresponding height is 10 times of that base, which of the following is the best interpretation of $A(4) = 80$?

A. If the base of the triangle is 4 cm, then the area of the triangle is 80 cm^2.

B. the area is 4 cm^2, then the base of the triangle is 80 cm.

C. If the base of the triangle is 4 cm, then the height of the triangle is 80 cm.

D. If the height of the triangle is 4 cm, then the area of the triangle is 80 cm^2.

Thank you