

2019-20 ALGEBRA I Q3 GRADE RECOVERY

Name: _____

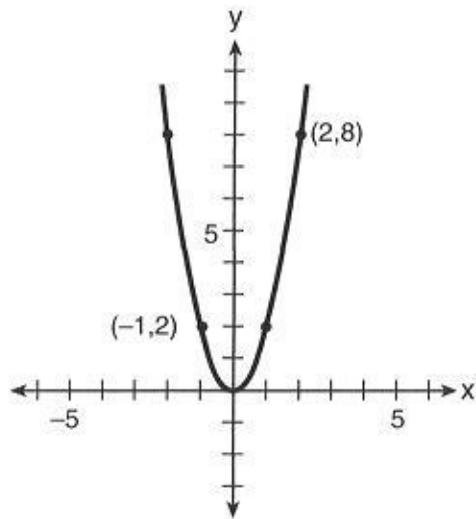
Date: _____

You must show your work for each problem. Either PRINT and show your hand-written work under each problem, **OR** use your own notebook paper. If you use your own paper, please number each problem and write the corresponding answer clearly.

For multiple choice questions, **CIRCLE** the correct corresponding letter for your answer. For free response questions, please **BOX YOUR ANSWERS**.

1. If one factor of $6x^2 + 5x - 6$ is $3x - 2$, the other factor is
- A. $3x + 3$ B. $6x + 3$ C. $2x + 3$ D. $2x - 3$

2. Which quadratic function is shown in the accompanying graph?



- A. $y = -2x^2$ B. $y = 2x^2$
 C. $y = -\frac{1}{2}x^2$ D. $y = \frac{1}{2}x^2$

3. The expression $3x^2 - 7x + 2$ is equivalent to

- A. $(3x + 2)(x + 1)$ B. $(3x + 1)(x + 2)$
 C. $(3x - 2)(x - 1)$ D. $(3x - 1)(x - 2)$

4. What is the solution set of the equation $x^2 - 3x - 10 = 0$?

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

5. The expression $\frac{(10w^3)^2}{5w}$ is equivalent to

- A. $2w^5$ B. $2w^8$ C. $20w^5$ D. $20w^8$

6. Which statement describes the lines whose equations are $y = \frac{1}{3}x + 12$ and $6y = 2x + 6$?
- A. They are segments.
 - B. They are perpendicular to each other.
 - C. They intersect each other.
 - D. They are parallel to each other.

7. If $3x + c = 4$, then x equals

A. $4 - c$ B. $\frac{4 - c}{3}$ C. $\frac{c - 4}{3}$ D. $c - 4$

8. What is the slope of the line whose equation is $x + 2y = 6$?

A. 1 B. 2 C. 6 D. $-\frac{1}{2}$

9. What is the solution for the following system of equations?

$$\begin{aligned} 2x + y &= 7 \\ x - 2y &= 6 \end{aligned}$$

- A. (3, 1) B. (1, 3) C. (-1, 4) D. (4, -1)

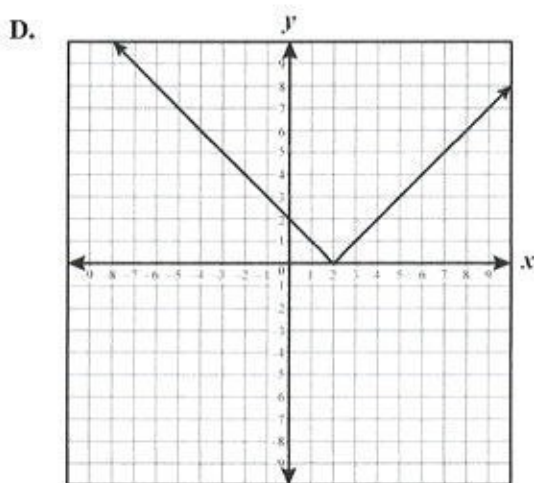
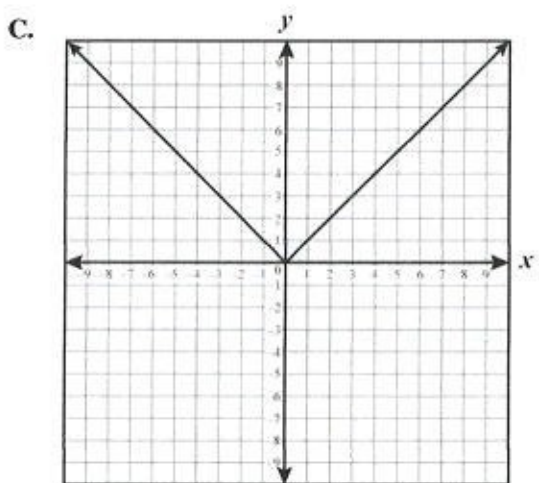
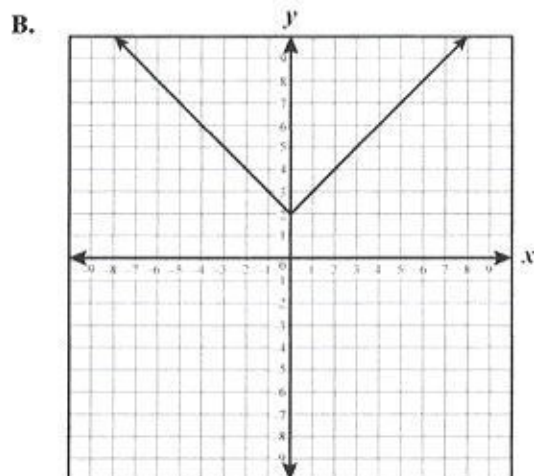
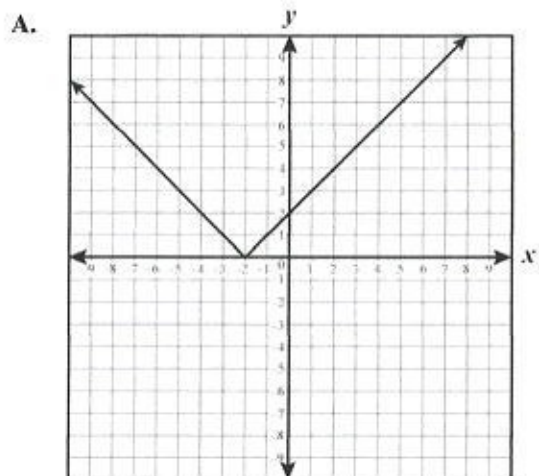
10. What is the y -intercept of the graph of the equation $y = \frac{1}{4}x - \frac{2}{3}$?

A. $-\frac{2}{3}$ B. $\frac{2}{3}$ C. $-\frac{1}{4}$ D. $\frac{1}{4}$

11. If $x - 3$ is a factor of $x^2 + x - 12$, then the other factor is

A. $4x - 3$ B. $3x - 4$ C. $x - 4$ D. $x + 4$

12. Which graph represents the function $y = |x| + 2$



13. What is the value of x in the equation $5(2x - 7) = 15x - 10$?

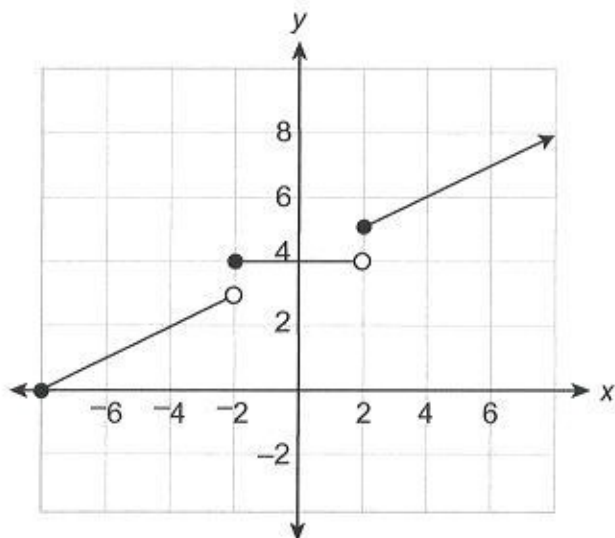
- A. 1 B. 0.6 C. -5 D. -9

14. Which value of x is the solution of the equation

$$\frac{1}{7} + \frac{2x}{3} = \frac{15x - 3}{21} ?$$

- A. 6 B. 0 C. $\frac{4}{13}$ D. $\frac{6}{29}$

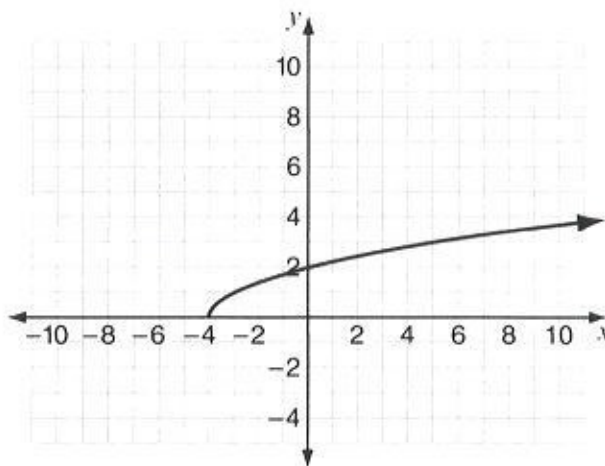
15. The graph of a function is shown below.



Which value is *not* in the range of the function?

- A. 0 B. 3 C. 4 D. 5
16. Expressed in factored form, the binomial $2x^2y - 4xy^3$ is equivalent to
- A. $2xy(x - 2y)$ B. $2xy(xy - 4y)$
 C. $2xy(x - 2y^2)$ D. $2x^2y^3(y - 2)$
17. Which expression is equivalent to the expression $(2x + 4)(x - 6)$?
- A. $2x^2 - 24$ B. $2x^2 - 8x - 24$
 C. $x^2 - 4x - 12$ D. $2x^2 + 4x - 24$

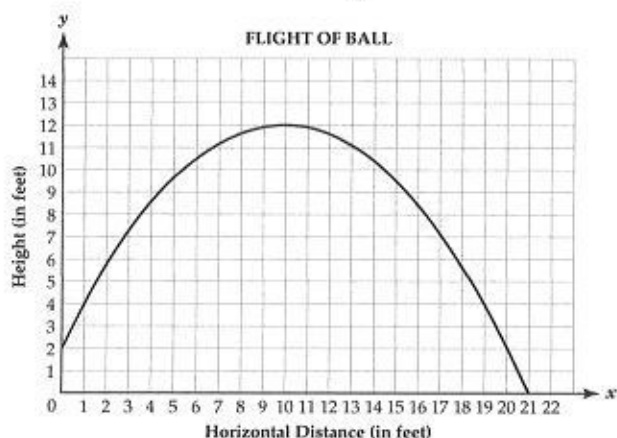
18. Look at this graph of a function. (y is a function of x .)



What is the domain of the function?

- A. all real numbers
 B. all real numbers except -4
 C. all real numbers greater than or equal to 0
 D. all real numbers greater than or equal to -4

19. Bob threw a ball across a basketball court. The graph below shows the relationship between the horizontal distance of the ball and its height.



How many feet from Bob did the ball land?

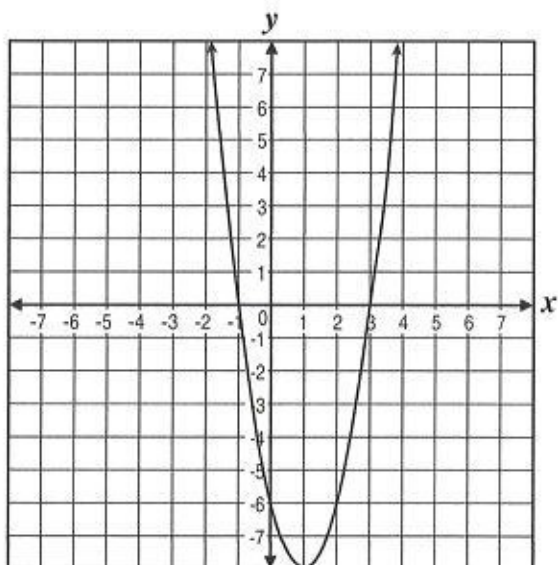
20. The value of 5^{-2} is

A. $-\frac{1}{25}$ B. $\frac{1}{25}$ C. -10 D. -25

21. The greatest common factor of $3m^2n + 12mn^2$ is

A. $3n$ B. $3m$ C. $3mn$ D. $3mn^2$

22. What are the real roots of the function in the graph?



A. 3 B. -6
C. -1 and 3 D. -6, -1, and 3

23. What is the vertex of the quadratic function $y = -(x - 3)^2 + 4$?

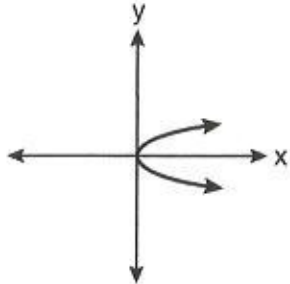
A. (5, 0) B. (0, -5) C. (3, 4) D. (-3, 4)

24. The graph of the function $f(x) = x^3$ will be shifted down 2 units and to the right 3 units. Which is the function that corresponds to the resulting graph?

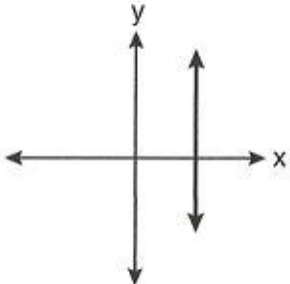
A. $g(x) = (x + 3)^3 + 2$ B. $g(x) = (x + 3)^3 - 2$
C. $g(x) = (x - 3)^3 + 2$ D. $g(x) = (x - 3)^3 - 2$

25. Which graph represents a function?

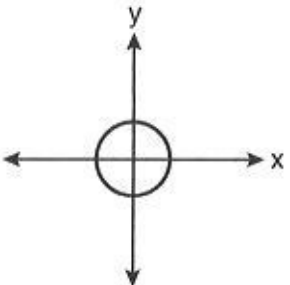
A.



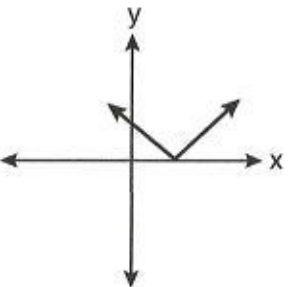
B.



C.



D.



26. Factor $16x^4 - 1$.

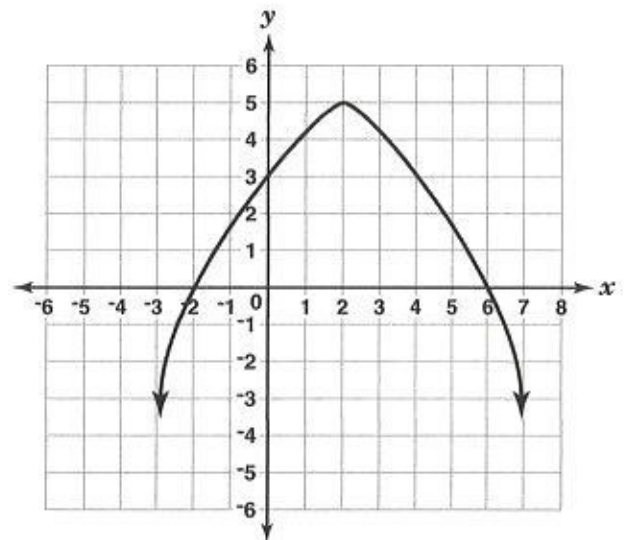
A. $(4x^2 + 1)^2$

B. $(4x^2 - 1)^2$

C. $(4x^2 + 1)(2x + 1)(2x - 1)$

D. $(4x^2 - 1)(2x + 1)(2x + 1)$

27. Look at the function that is graphed below.



What is the maximum value of this function?

A. 2

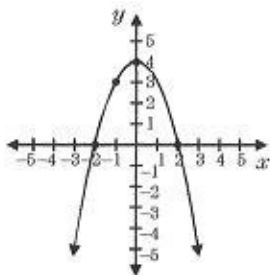
B. 3

C. 5

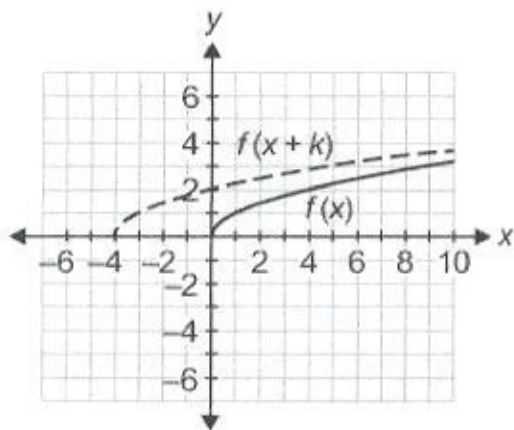
D. 6

28. Which is an equation of the parabola graphed in the accompanying diagram?

- A. $y = x^2 + 4$
 B. $y = x^2 - 4$
 C. $y = -x^2 + 4$
 D. $y = -x^2 - 4$



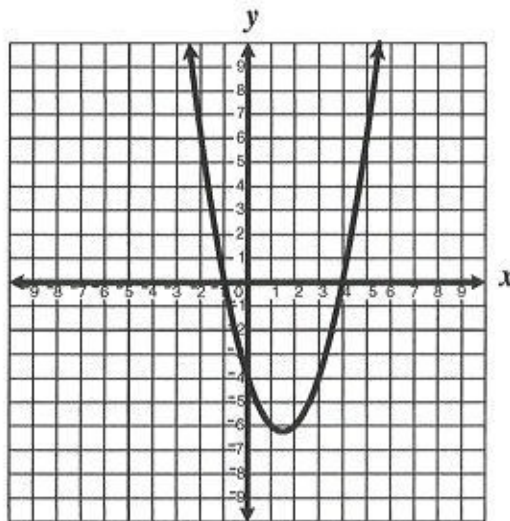
29. The graphs of $f(x) = \sqrt{x}$ and $f(x+k) = \sqrt{x+k}$ are shown.



What is the value of k ?

- A. -16 B. -4 C. 4 D. 16

30. The graph of the equation $y = x^2 - 3x - 4$ is shown below.

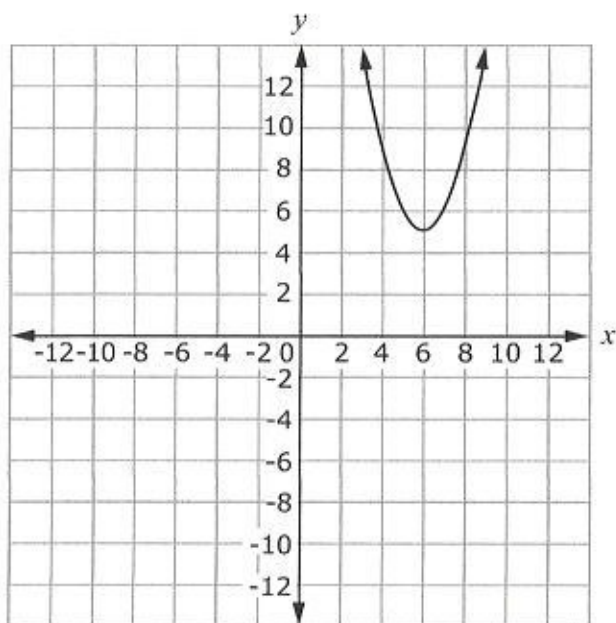


For what value or values of x is $y = 0$?

- A. $x = -1$ only B. $x = -4$ only
 C. $x = -1$ and $x = 4$ D. $x = 1$ and $x = -4$

31. Sam graphs the function $f(x) = (x - 6)^2 + 5$.

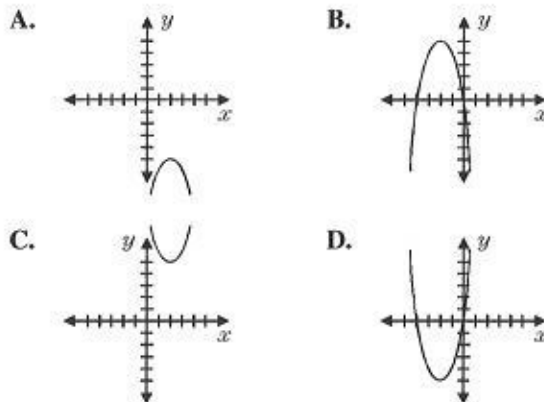
The graph of the function is shown.



What is the **vertex** of Sam's graph?

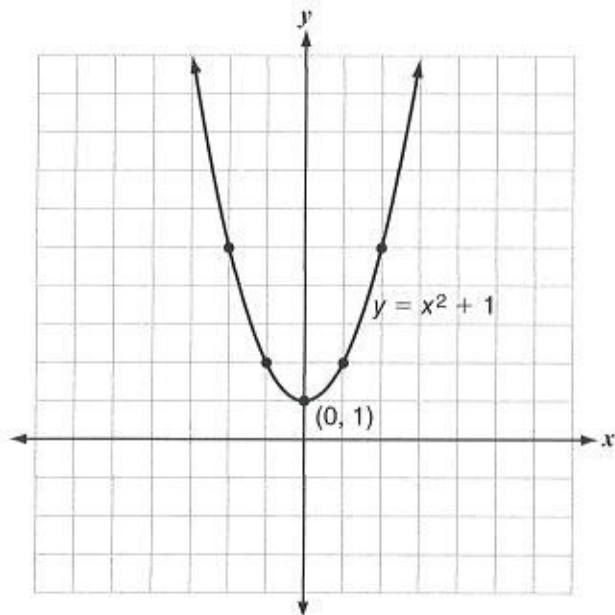
- A. $(-6, 5)$ B. $(5, 6)$ C. $(6, 5)$
32. A ball is thrown upward. Its height (h , in feet) is given by the function $h = -16t^2 + 64t + 34$, where t is the length of time (in seconds) that the ball has been in the air. What is the *maximum* height that the ball reaches?
- A. 3 ft B. 51 ft C. 63 ft D. 67 ft

33. The graph of the function $L(x) = -(x - 2)^2 - 5$ is?



- A. $(0, -5), (0, 3)$ B. $(0, 5), (0, -3)$
- C. $(5, 0), (-3, 0)$ D. $(-5, 0), (3, 0)$
34. What are the x -intercepts for the function $f(x) = x^2 + 2x - 15$?
35. Antonio threw a ball with an upward velocity of 6 meters per second from a height of 8 meters. The formula $h = -4.9t^2 + 6t + 8$ describes this situation, where t represents the time in seconds since the ball was thrown.
- Which estimate is closest to the time it will take the ball to hit the ground ($h = 0$)?
- A. 0.71 second B. 0.80 second
- C. 1.94 seconds D. 2.03 seconds

36. Beth and Jacob are graphing two equations on a coordinate grid. Beth has graphed the equation $y = x^2 + 1$.

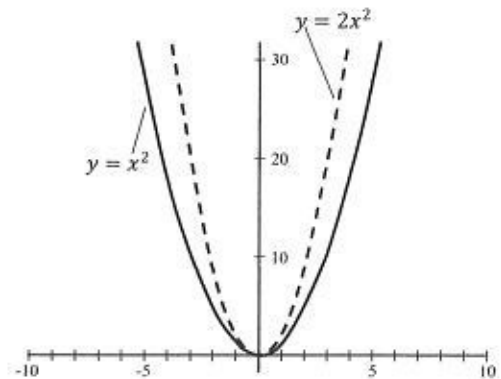


If Jacob graphs $y = x^2 + 3$, where will his graph be in relation to the graph Beth made?

- A. 2 units up B. 3 units up
 C. 2 units to the left D. 3 units to the right
37. Two consecutive positive integers have the property that one integer times twice the other equals 612. What is the sum of these two integers?
- A. 33 B. 35 C. 37 D. 39

38. Factor: $25x^2 - 9$

39. Compare the shape and position of the graphs of $f(x) = x^2$ and $g(x) = 2x^2$, and explain the differences in terms of the algebraic expressions for the functions.



40. Factor: $x^2 + 5x - 24$

41. Solve by completing the square:

$$x^2 - 8x = 9$$

42. Solve the equation using both the factoring method and the quadratic formula.

$$x^2 + 16x + 64 = 0$$