

TEST NAME: **A-APR.3 Schoolnet**
TEST ID: **1582893**
GRADE: **09 - Ninth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

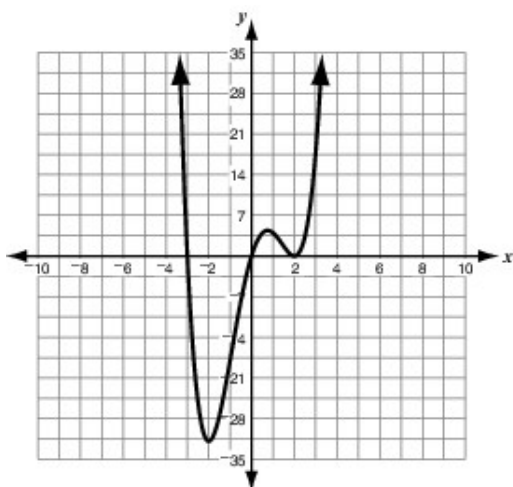
Date: _____

1. What are all the zeros of this polynomial?

$$y = x(x + 1)(x - 2)^2(x + 8)^3$$

- A. 1, -2, and 8
- B. -1, 2, and -8
- C. 0, 1, -2, and 8
- D. 0, -1, 2, and -8

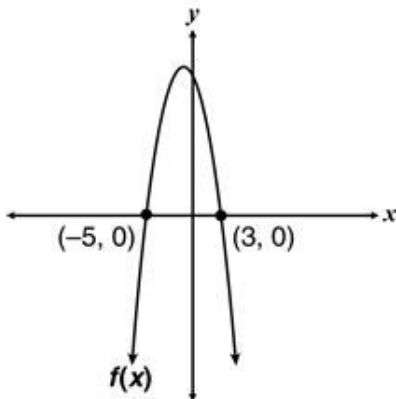
2. Which function **best** represents the graph below?



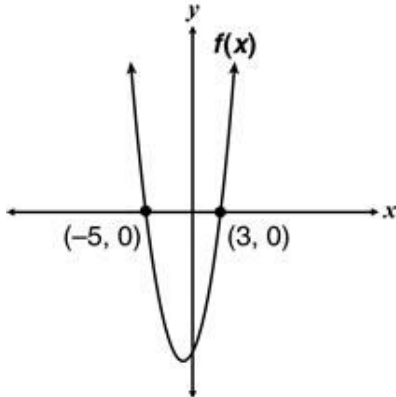
- A. $g(x) = x(x - 2)^2(x + 3)$
- B. $g(x) = (x - 2)^2(x + 3)$
- C. $g(x) = x(x - 2)(x + 3)$
- D. $g(x) = (x - 2)(x + 3)$

3. The function $f(x)$ opens upward, and its zeros are -5 and 3 . Which graph best represents $f(x)$?

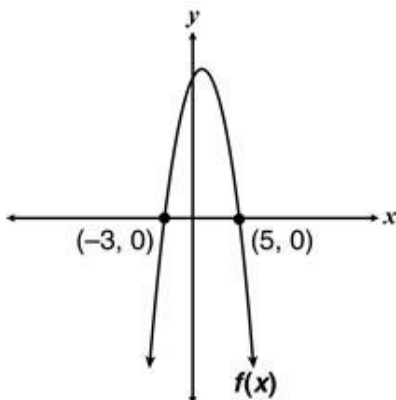
A.



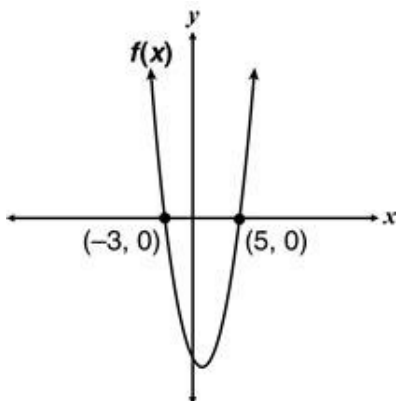
B.



C.



D.

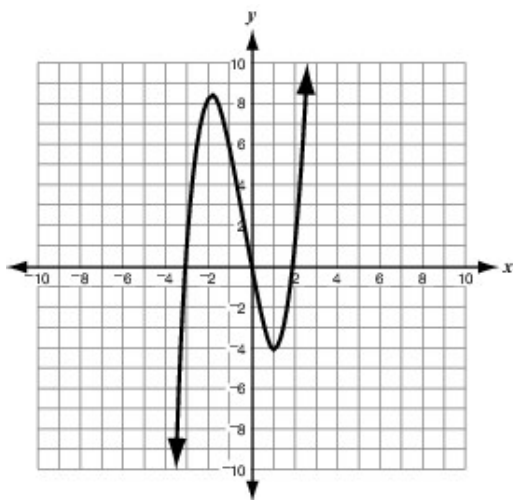


4. Let $p(x) = -x^2 + 5x - 4$. Which statement describes the graph of $p(x)$?
- A. The graph has no x -intercepts and opens upward from its vertex, the minimum point.
 - B. The graph has 2 x -intercepts and opens downward from its vertex, the maximum point.
 - C. The graph has 2 x -intercepts and opens upward from its vertex, the minimum point.
 - D. The graph has no x -intercepts and opens downward from its vertex, the maximum point.

5. What is the x -intercept of the graph of $y = (x - 5)^2$?

- A. -25
- B. -5
- C. 5
- D. 25

6. Which of these functions **best** represents the graph shown below?

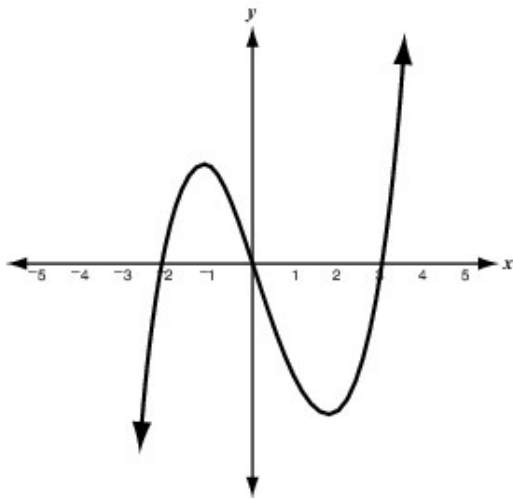


- A. $f(x) = (x + 2)(x - 3)$
- B. $f(x) = (x + 3)(x - 2)$
- C. $f(x) = x(x + 2)(x - 3)$
- D. $f(x) = x(x + 3)(x - 2)$

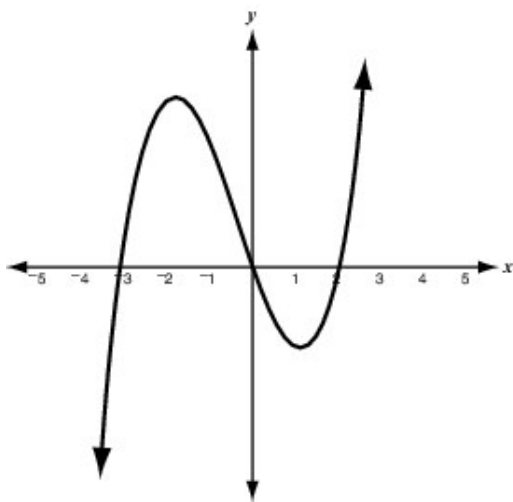
7. Which of these **best** exemplifies a sketch of the graph of the polynomial

function $f(x) = x(x - 3)(x + 2)$?

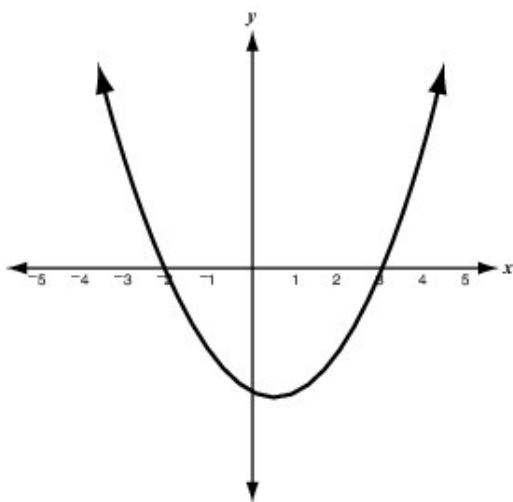
A.



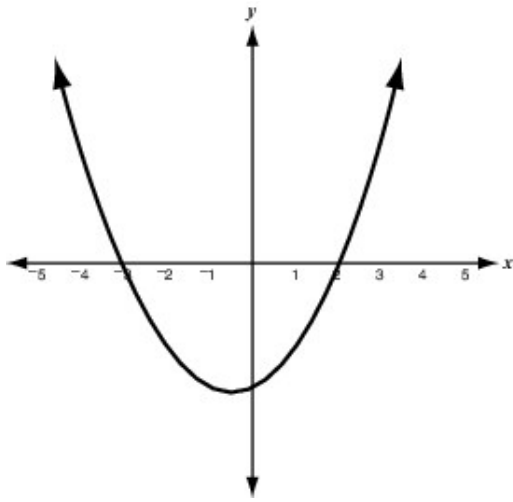
B.



C.



D.

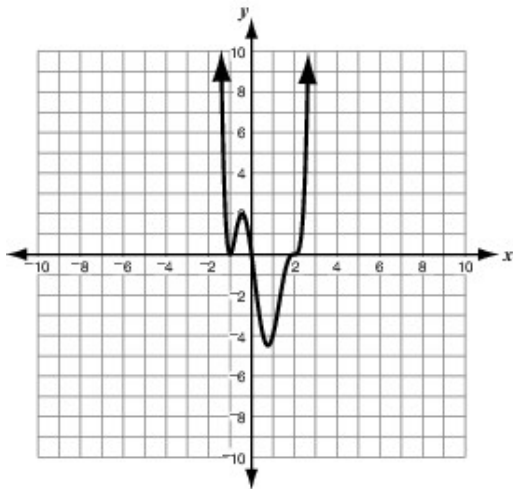


8. What are the zeros of the polynomial function below?

$$f(x) = (x^2 - 16)(x + 5)x$$

- A. -5, -4, 0, 4
- B. -4, 0, 4, 5
- C. -5, -4, 4
- D. -5, 0, 4

9. Which function **best** represents the graph below?



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

10. Which set of ordered pairs represents the x-intercepts of the function $y = (x - 5)(2x + 3)$?

- A. $(-5, 0)$ and $(\frac{3}{2}, 0)$
- B. $(0, -5)$ and $(0, \frac{3}{2})$
- C. $(0, 5)$ and $(0, -\frac{3}{2})$
- D. $(5, 0)$ and $(-\frac{3}{2}, 0)$

11. At which points does the graph of the polynomial $f(x) = x^3 + 5x^2 + 6x$ intersect the x-axis?

- A. -3, -2, and 0
- B. 0, 2, and 3
- C. -3 and -2
- D. 2 and 3

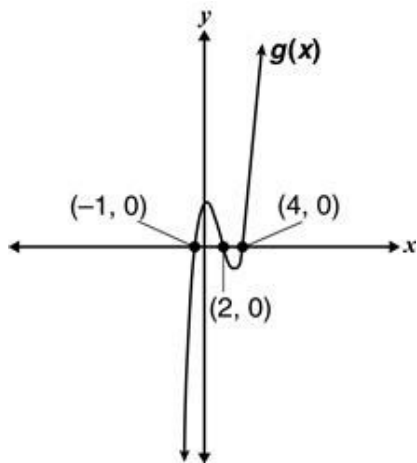
12. The 3rd-degree polynomial function $P(x)$ has roots at -3 , -1 , and 14 , and a y -intercept of 6 . Which of the following statements **MUST** be true?
- A. $P(6) = 0$
 - B. $P(4) = 50$
 - C. $P(x) \leq 86$ for all real values of x .
 - D. $P(x)$ has a double root at $x = 14$.

13. Which function has zeros at -4 , 2 , and 0 ?

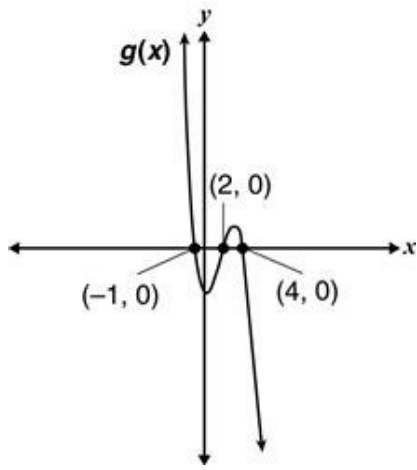
- A. $f(x) = x^3 + 2x^2 - 8x$
- B. $f(x) = x^3 - 2x^2 - 8x$
- C. $f(x) = x^2 + 2x - 8$
- D. $f(x) = x^2 - 2x - 8$

14. The function $g(x)$ approaches positive infinity as x approaches positive infinity. The zeros of the function are -1 , 2 , and 4 . Which graph best represents $g(x)$?

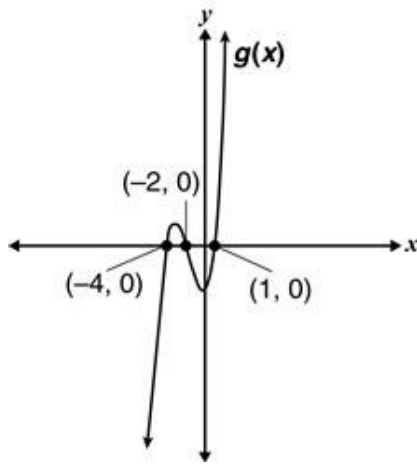
A.



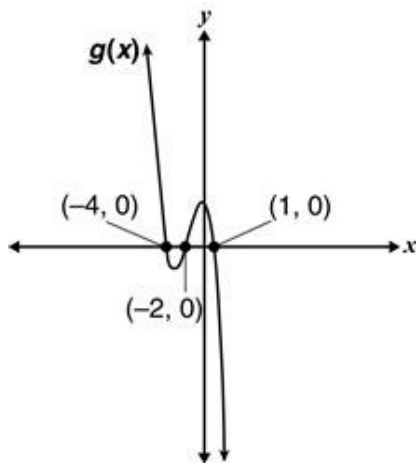
B.



C.



D.



15. Which is the correct way of finding the real zero of $f(x) = 8x^3 + 216$?

- A. Divide -216 by 8 and find the cube root of the result.
- B. Divide 216 by 8 and find the cube root of the result.
- C. Find the cube root of -216 and divide the result by 8.
- D. Find the cube root of 216 and divide the result by 8.

16. Four functions are listed below.

$f(x)$	$(x^2 - 4)(x - 1)$
$g(x)$	$(x + 4)(x - 6)$
$h(x)$	$(x^2 + 6)$
$k(x)$	$x(x^2 - 25)$

Which two functions, when graphed, have the same number of x -intercepts?

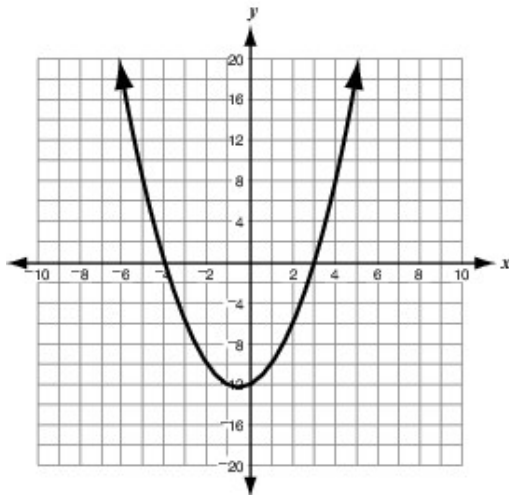
- A. $f(x)$ and $g(x)$
- B. $g(x)$ and $h(x)$
- C. $h(x)$ and $k(x)$
- D. $k(x)$ and $f(x)$

17. What is the set of real zeros of the function $f(x) = (x^2 + 2500)(x^2 - 1600)$?

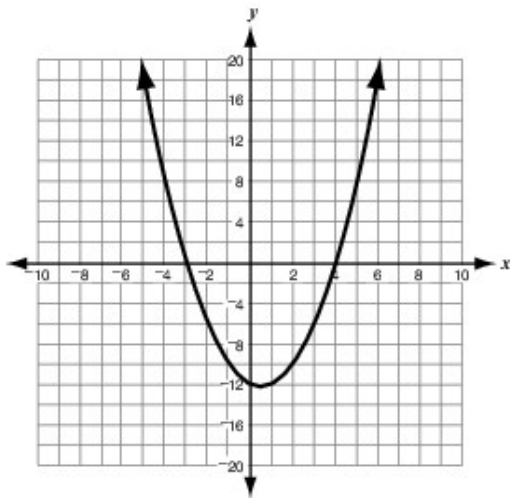
- A. $\{40\}$
- B. $\{-40, 40\}$
- C. $\{-50, 50\}$
- D. $\{-50, -40, 40, 50\}$

18. Which graph **best** represents the function $f(x) = (x - 3)^2(x + 4)$?

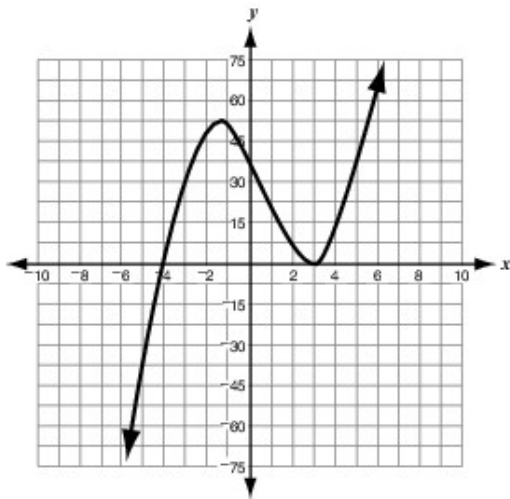
A.



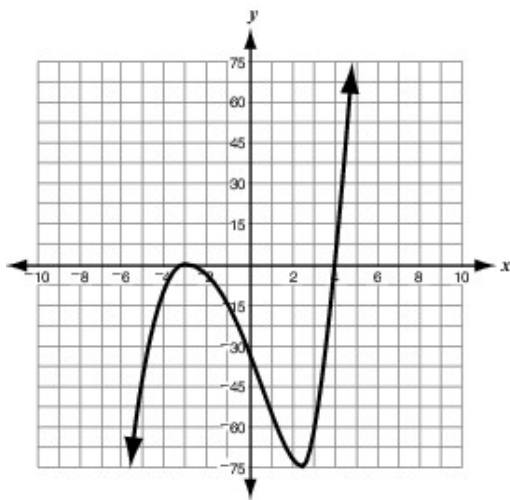
B.



C.



D.



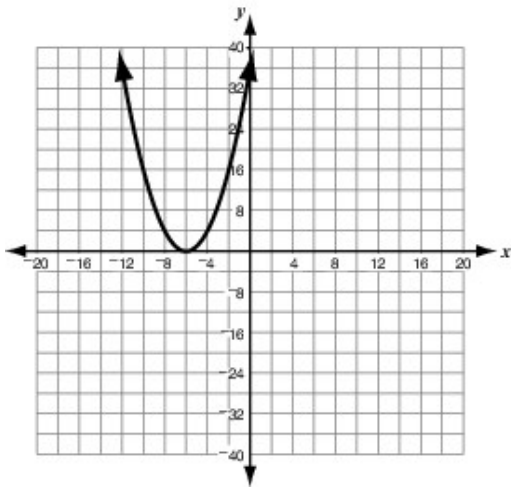
19. The roots of a quadratic equation are 5 and $\frac{2}{3}$. If one of the two factors of the equation is $x - 5$, which expression could be a second factor?

- A. $2x - 3$
- B. $2x + 3$
- C. $3x - 2$
- D. $3x + 2$

20. Let the function $f(x) = (x + 4)(x^2 - 36)(x^2 + 25)$. What are all the x-intercepts for the graph of $f(x)$?

- A. -4, 6
- B. -6, -4, 6
- C. -6, 4, 6
- D. -6, -5, 4, 5, 6

21. Which function, when graphed, would have the same zero(s) as the function below?



- A. $f(x) = x(x + 6)$
- B. $f(x) = x(x - 6)$
- C. $f(x) = (x + 6)^2$
- D. $f(x) = (x - 6)^2$

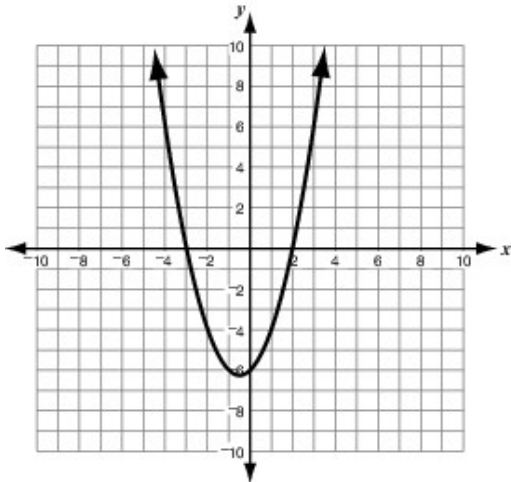
22. Which of the following functions has the same set of zeros as the function $f(x) = x^2 - 6x + 8$?

- A. $g(x) = x - 4$
- B. $g(x) = x^2 - 5x + 6$
- C. $g(x) = 2x^2 - 12x + 16$
- D. $g(x) = x^3 - 6x^2 + 8x$

23. What is the end behavior for the polynomial function $f(x) = -6x^4 + 3x^2 - 7$?

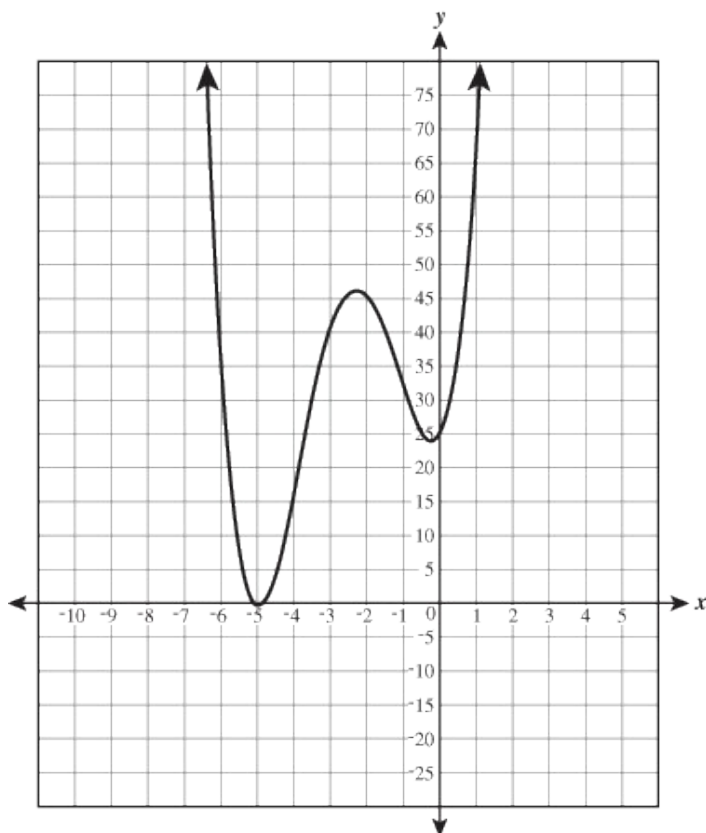
- A. $x \rightarrow -\infty, f(x) \rightarrow \infty$
 $x \rightarrow \infty, f(x) \rightarrow -\infty$
- B. $x \rightarrow -\infty, f(x) \rightarrow \infty$
 $x \rightarrow \infty, f(x) \rightarrow \infty$
- C. $x \rightarrow -\infty, f(x) \rightarrow -\infty$
 $x \rightarrow \infty, f(x) \rightarrow -\infty$
- D. $x \rightarrow -\infty, f(x) \rightarrow -\infty$
 $x \rightarrow \infty, f(x) \rightarrow \infty$

24. Which of these could represent the factors of the polynomial graphed below?



- A. $(x + 3)(x + 2)$
- B. $(x - 3)(x - 2)$
- C. $(x - 3)(x + 2)$
- D. $(x + 3)(x - 2)$
25. Which of the following is the set of real zeros of the function $f(x) = (x^3 + 1000)(x^4 - 160,000)$?
- A. $\{-10, 20\}$
- B. $\{-20, 20\}$
- C. $\{-20, -10, 20\}$
- D. $\{-20, -10, 10, 20\}$

26. Consider the following graph of a function.



Which polynomial function is represented by this graph?

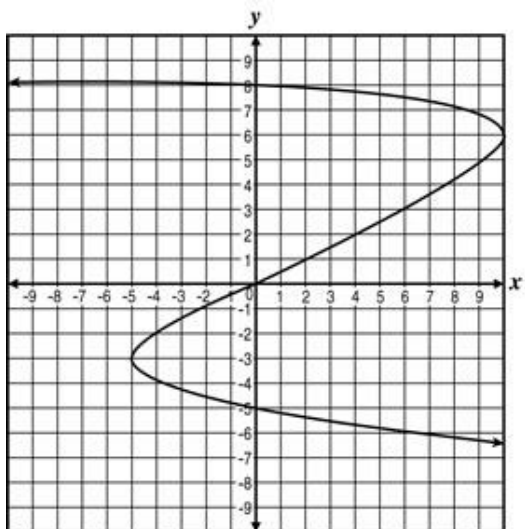
- A. $f(x) = (x - 1)^2(x - 5)^2$
- B. $f(x) = (x + 1)^2(x + 5)^2$
- C. $f(x) = (x^2 + 1)(x + 5)^2$
- D. $f(x) = (x^2 - 1)(x - 5)^2$

27. A toy rocket is launched vertically upward from a height of 96 feet above the ground. The height, h , of the rocket above the ground after t seconds is given by the function $h(t) = -16t^2 + 80t + 96$. Which equation can be used to find the time it takes for the rocket to return to the height from which it was launched?

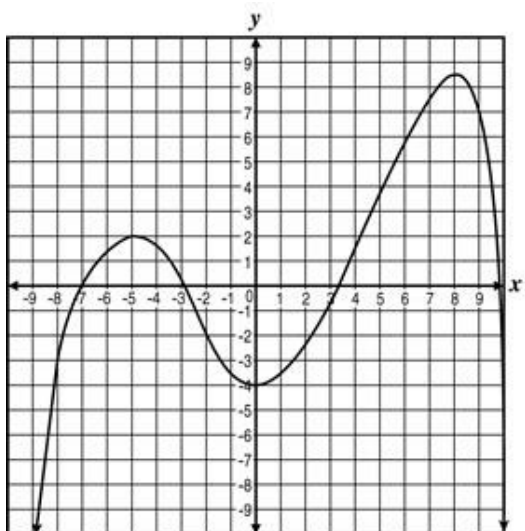
- A. $-16(t + 3)(t + 2) = 0$
- B. $-16(t - 6)(t + 1) = 0$
- C. $-16(t - 5) = 0$
- D. $-16(t + 5) = 0$

28. Which graph best represents a polynomial function with zeros located at -5 , 0 , and 8 ?

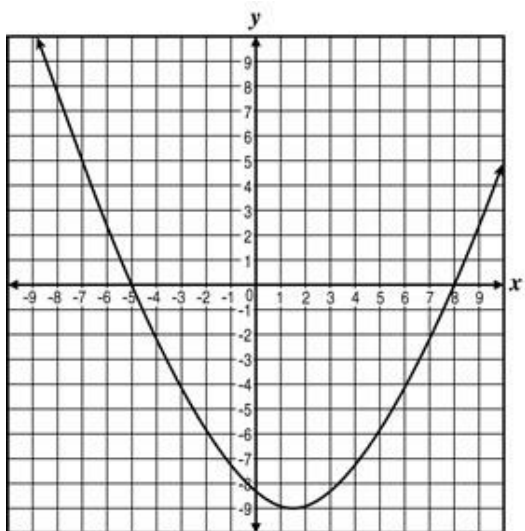
A.



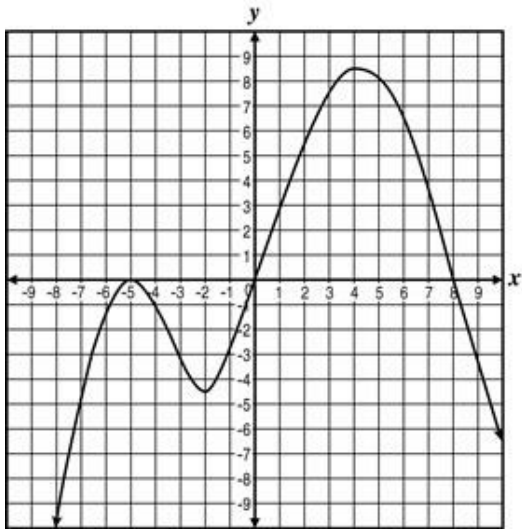
B.



C.



D.



29. The roots of a quadratic equation are 6 and $\frac{3}{4}$. If one of the two factors of the equation is $x - 6$, what is the second factor?

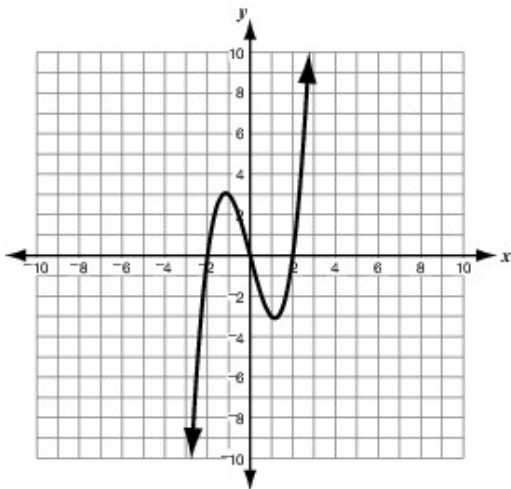
- A. $3x - 4$
- B. $3x + 4$
- C. $4x - 3$
- D. $4x + 3$

30. For which of the following equations is $x = -2$ not a solution?

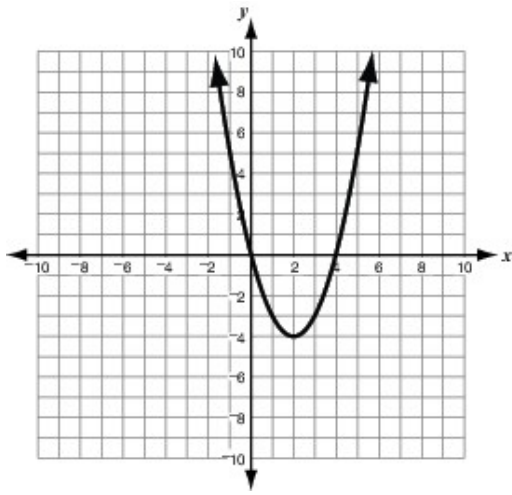
- A. $|x| = 2$
- B. $x^2 = 4$
- C. $(x + 2)(x - 3) = 6$
- D. $(3x + 6)(x - 3) = 0$

31. Which graph **best** represents the function $f(x) = x^3 + 4x$?

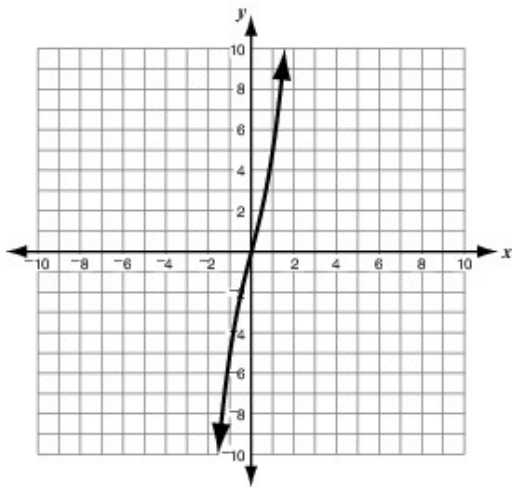
A.



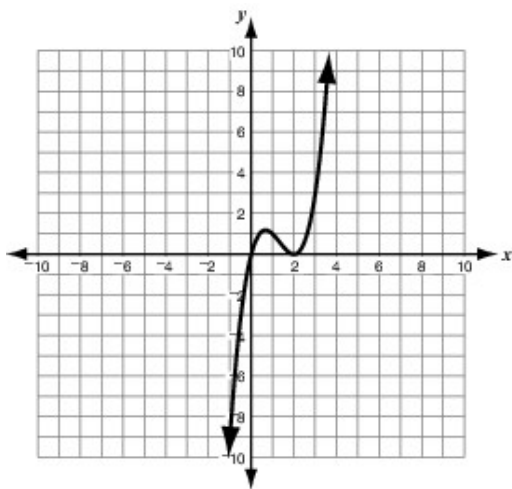
B.



C.



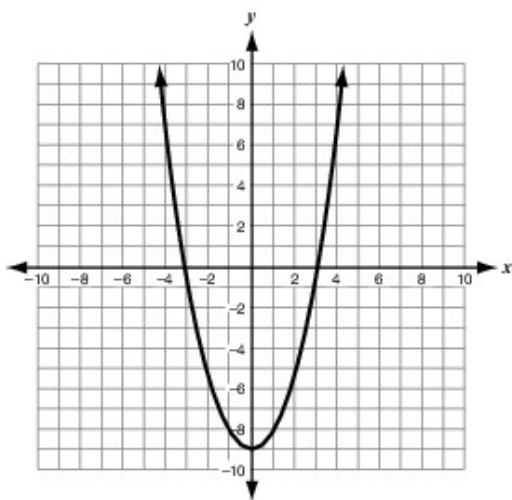
D.



32. Which polynomial has exactly 2 positive x-intercepts?

- A. $y = x^3 - 7x + 6$
- B. $y = x^3 - 7x - 6$
- C. $y = x^3 + 4x^2 + x - 6$
- D. $y = x^3 - 6x^2 + 11x - 6$

33. Based on factoring, which equation **best** represents the graph below?



- A. $y = x^2 - 3$
- B. $y = x^2 - 9$
- C. $y = 3x^2 - 3$
- D. $y = 9x^2 - 1$

34. Which value is not a solution to the equation $2m(m - 1)(3m - 1) = 0$?

- A. $m = 0$
- B. $m = \frac{1}{3}$
- C. $m = 1$
- D. $m = 2$

35. What are the zeros of the polynomial function $f(a) = a^3 + 4a^2 - 32a$?

- A. -8 and 4 only
- B. -4 and 8 only
- C. -8, 0, and 4
- D. -4, 0, and 8