

1. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$6, \frac{2}{3}, \text{ and } \frac{-3}{5}$$

- A. $a \in [13, 17], b \in [87.9, 89.1], c \in [-13, -6], \text{ and } d \in [-42, -31]$
B. $a \in [13, 17], b \in [-93.3, -90.6], c \in [-2, 4], \text{ and } d \in [35, 42]$
C. $a \in [13, 17], b \in [89.6, 91.6], c \in [-2, 4], \text{ and } d \in [-42, -31]$
D. $a \in [13, 17], b \in [106.9, 113.9], c \in [118, 124], \text{ and } d \in [35, 42]$
E. $a \in [13, 17], b \in [-93.3, -90.6], c \in [-2, 4], \text{ and } d \in [-42, -31]$
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2. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$-5 + 2i \text{ and } 3$$

- A. $b \in [-5, 4], c \in [-5.1, -3.5], \text{ and } d \in [4, 9]$
B. $b \in [-10, -3], c \in [-1.4, -0.2], \text{ and } d \in [84, 89]$
C. $b \in [4, 16], c \in [-1.4, -0.2], \text{ and } d \in [-90, -84]$
D. $b \in [-5, 4], c \in [1, 2.4], \text{ and } d \in [-21, -11]$
E. None of the above.
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3. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$4 - 4i \text{ and } -1$$

- A. $b \in [1, 5], c \in [0, 10], \text{ and } d \in [0, 9]$
B. $b \in [1, 5], c \in [-10, 2], \text{ and } d \in [-10, 3]$

- C. $b \in [5, 9], c \in [17, 29]$, and $d \in [-32, -27]$
 D. $b \in [-12, -3], c \in [17, 29]$, and $d \in [32, 35]$
 E. None of the above.

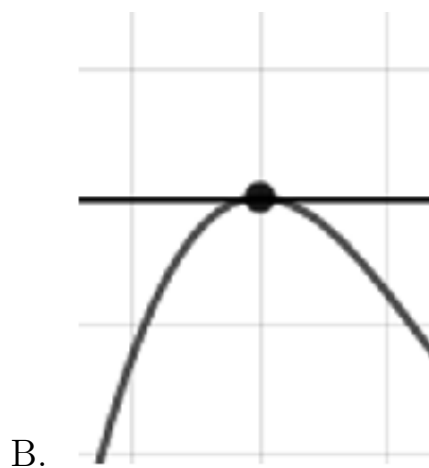
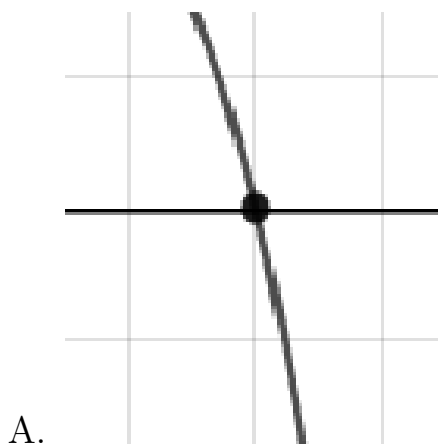
4. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{7}{4}, \frac{7}{3}, \text{ and } -1$$

- A. $a \in [5, 19], b \in [-39, -36], c \in [-4, 2]$, and $d \in [-52, -46]$
 B. $a \in [5, 19], b \in [56, 69], c \in [95, 101]$, and $d \in [47, 55]$
 C. $a \in [5, 19], b \in [2, 7], c \in [-61, -52]$, and $d \in [-52, -46]$
 D. $a \in [5, 19], b \in [-39, -36], c \in [-4, 2]$, and $d \in [47, 55]$
 E. $a \in [5, 19], b \in [36, 41], c \in [-4, 2]$, and $d \in [-52, -46]$

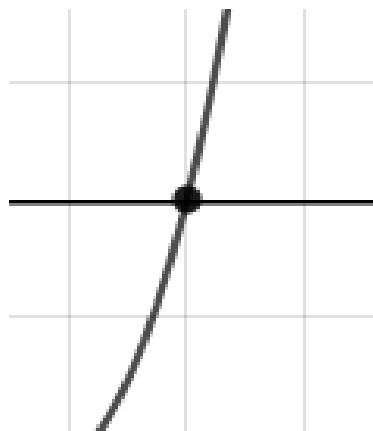
5. Describe the zero behavior of the zero $x = 4$ of the polynomial below.

$$f(x) = -5(x - 4)^4(x + 4)^9(x - 2)^3(x + 2)^7$$





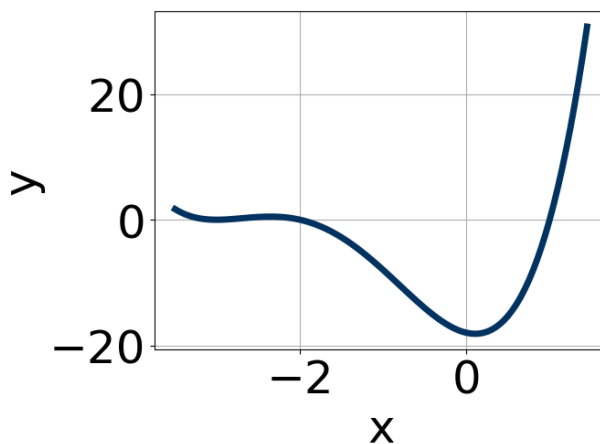
C.



D.

E. None of the above.

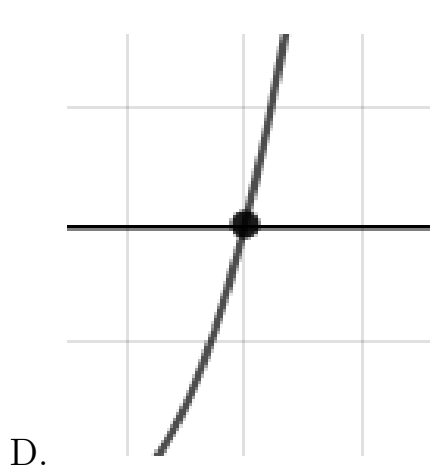
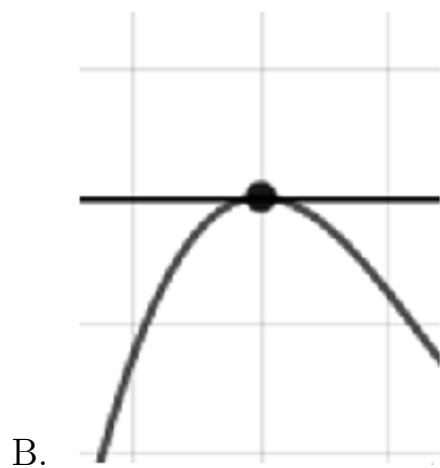
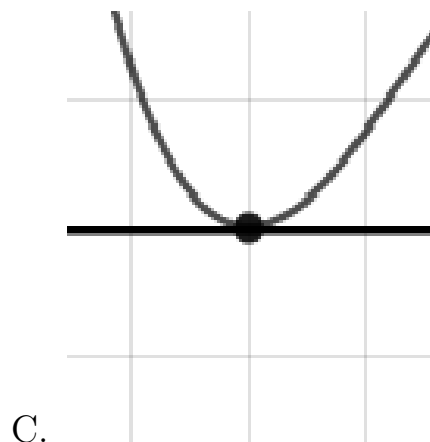
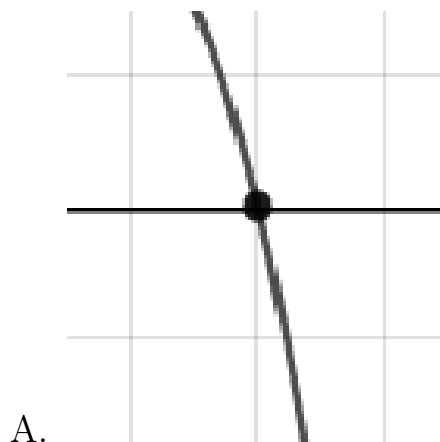
6. Which of the following equations *could* be of the graph presented below?



- A. $17(x + 3)^9(x + 2)^4(x - 1)^9$
- B. $8(x + 3)^4(x + 2)^5(x - 1)^9$
- C. $11(x + 3)^{10}(x + 2)^{10}(x - 1)^7$
- D. $-3(x + 3)^8(x + 2)^5(x - 1)^9$
- E. $-3(x + 3)^4(x + 2)^9(x - 1)^8$

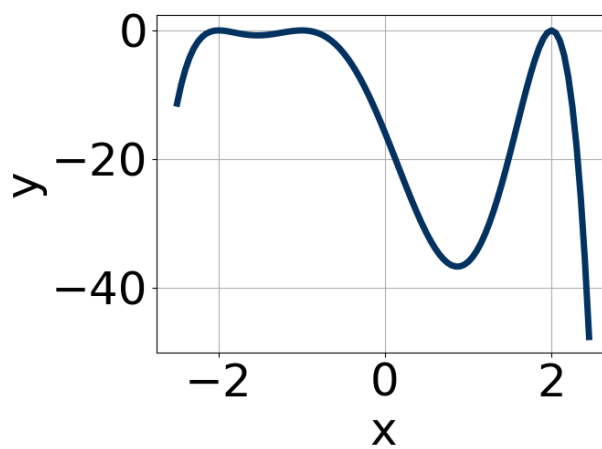
7. Describe the zero behavior of the zero $x = 6$ of the polynomial below.

$$f(x) = 5(x + 3)^8(x - 3)^4(x - 6)^{13}(x + 6)^8$$



E. None of the above.

8. Which of the following equations *could* be of the graph presented below?

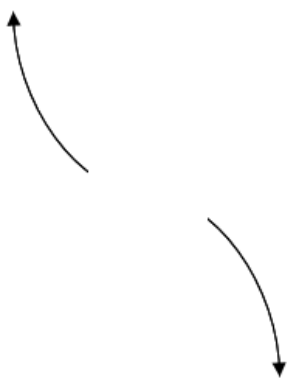
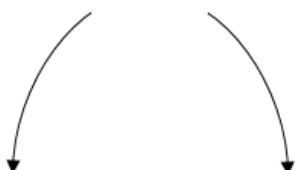
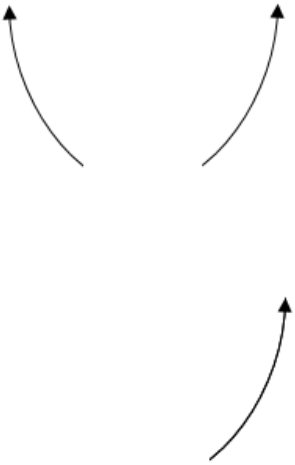
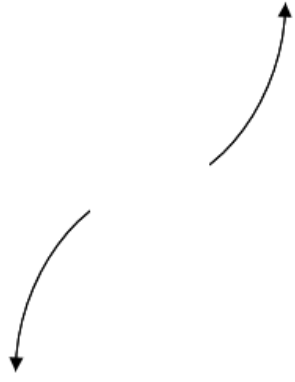


A. $7(x - 2)^4(x + 2)^6(x + 1)^9$

- B. $-4(x - 2)^8(x + 2)^{11}(x + 1)^9$
- C. $13(x - 2)^4(x + 2)^8(x + 1)^6$
- D. $-19(x - 2)^8(x + 2)^4(x + 1)^4$
- E. $-16(x - 2)^6(x + 2)^4(x + 1)^{11}$

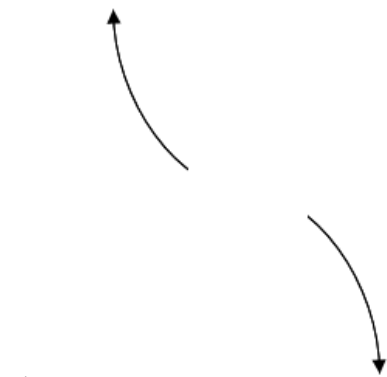
9. Describe the end behavior of the polynomial below.

$$f(x) = 4(x + 5)^5(x - 5)^{10}(x - 2)^3(x + 2)^5$$

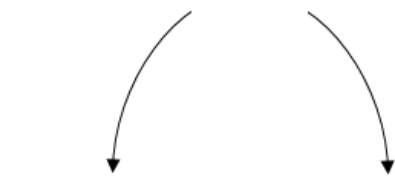
- A. 
- B. 
- C. 
- D. 
- E. None of the above.

10. Describe the end behavior of the polynomial below.

$$f(x) = 4(x + 6)^2(x - 6)^5(x + 4)^2(x - 4)^2$$

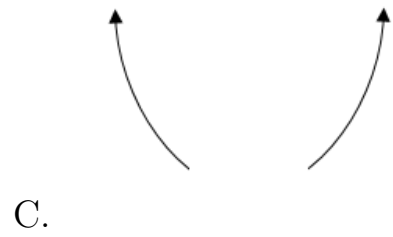


A.

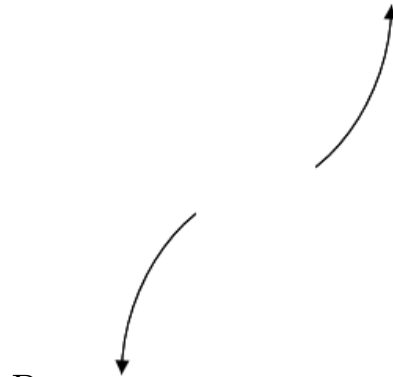


B.

E. None of the above.



C.



D.