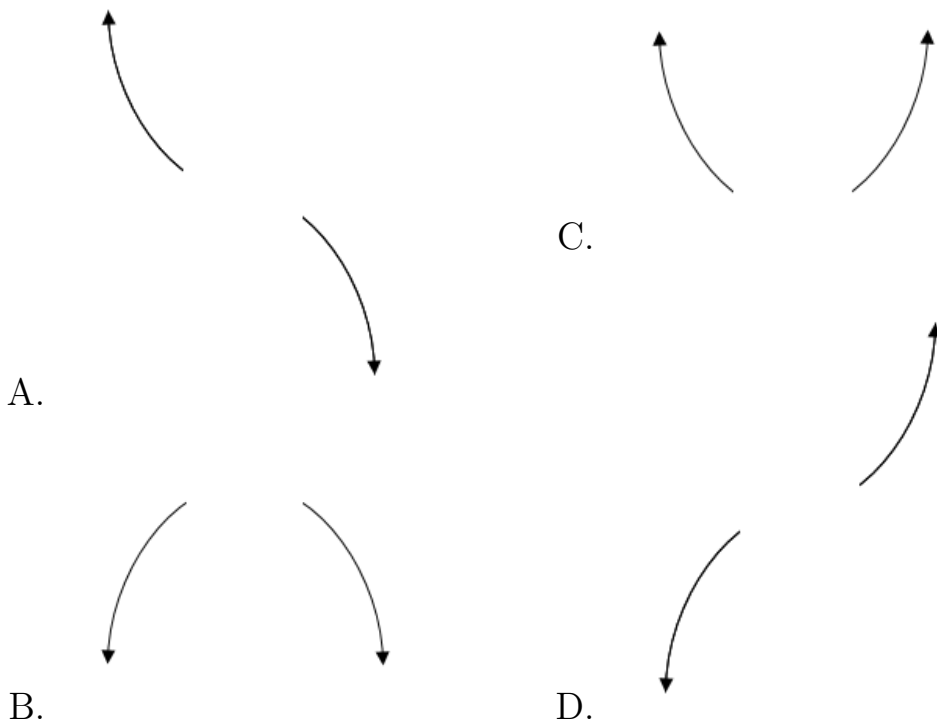


1. Describe the end behavior of the polynomial below.

$$f(x) = 9(x + 6)^5(x - 6)^{10}(x + 3)^3(x - 3)^5$$



E. None of the above.

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

$$7, 6, \text{ and } \frac{-7}{4}$$

- A. $a \in [-1, 5], b \in [-51, -40], c \in [74, 78], \text{ and } d \in [-295, -287]$
- B. $a \in [-1, 5], b \in [43, 49], c \in [74, 78], \text{ and } d \in [-295, -287]$
- C. $a \in [-1, 5], b \in [-51, -40], c \in [74, 78], \text{ and } d \in [287, 297]$
- D. $a \in [-1, 5], b \in [58, 62], c \in [256, 261], \text{ and } d \in [287, 297]$
- E. $a \in [-1, 5], b \in [11, 13], c \in [-164, -157], \text{ and } d \in [-295, -287]$

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

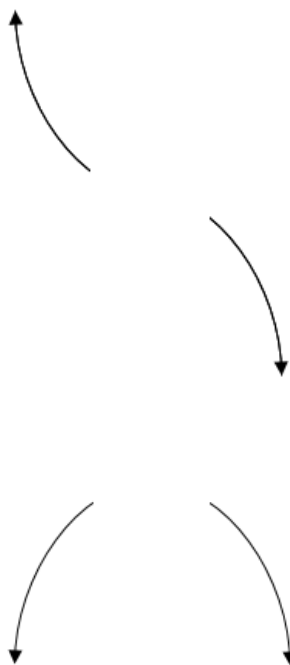
$$-4 + 2i \text{ and } -3$$

- A. $b \in [-1, 7], c \in [-1, 4], \text{ and } d \in [-13, -3]$
 B. $b \in [10, 18], c \in [41, 45], \text{ and } d \in [55, 73]$
 C. $b \in [-11, -4], c \in [41, 45], \text{ and } d \in [-60, -58]$
 D. $b \in [-1, 7], c \in [7, 13], \text{ and } d \in [8, 17]$
 E. None of the above.

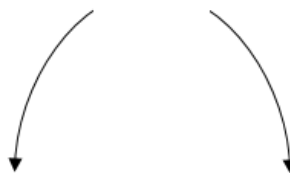
4. Describe the end behavior of the polynomial below.

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

A.



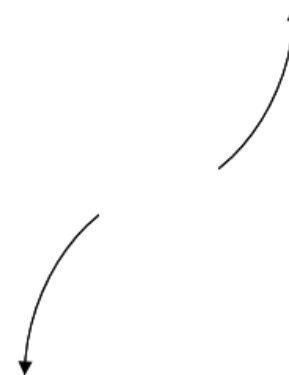
B.



C.

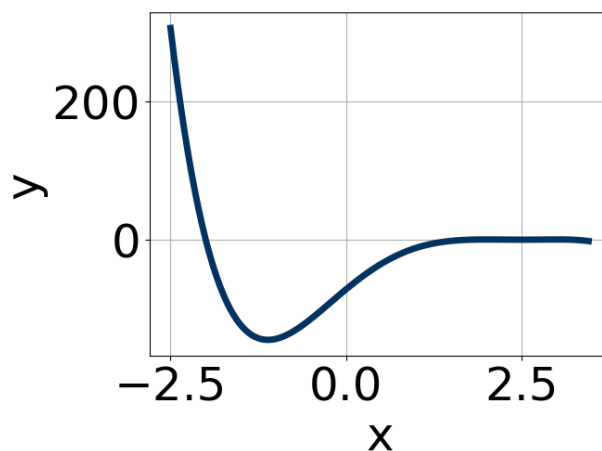


D.



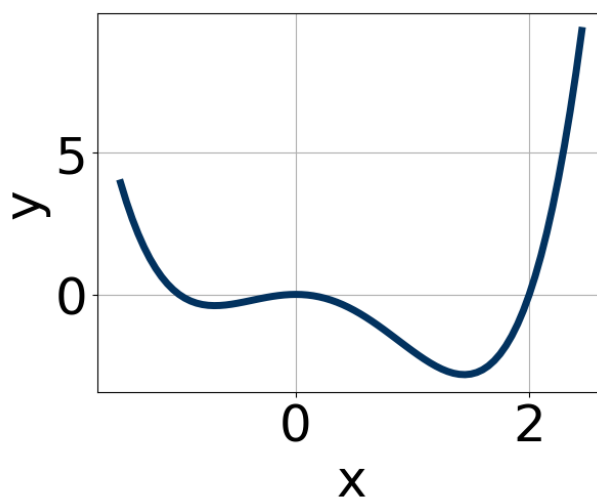
E. None of the above.

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



- A. $13(x - 2)^{10}(x - 3)^4(x + 2)^4$
- B. $2(x - 2)^8(x - 3)^{10}(x + 2)^7$
- C. $-8(x - 2)^{10}(x - 3)^4(x + 2)^9$
- D. $-3(x - 2)^4(x - 3)^5(x + 2)^9$
- E. $-16(x - 2)^6(x - 3)^7(x + 2)^{10}$

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



- A. $13x^{10}(x - 2)^4(x + 1)^{11}$
- B. $-8x^6(x - 2)^5(x + 1)^4$

- C. $-16x^8(x-2)^5(x+1)^5$
 D. $3x^{11}(x-2)^6(x+1)^9$
 E. $13x^8(x-2)^5(x+1)^7$

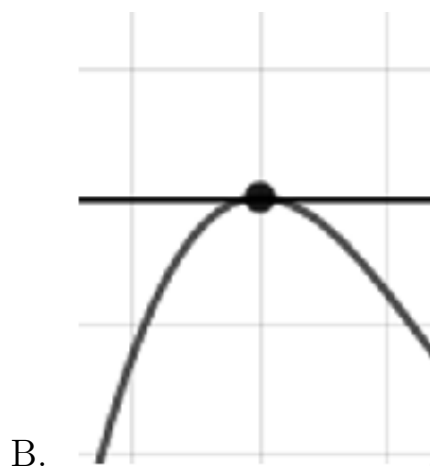
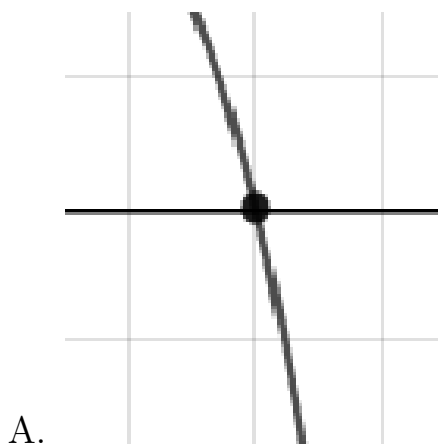
7. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{-4}{5}, \frac{-2}{3}, \text{ and } 3$$

- A. $a \in [10, 22], b \in [-24, -20], c \in [-64, -57], \text{ and } d \in [-24, -18]$
 B. $a \in [10, 22], b \in [-51, -42], c \in [-8, 5], \text{ and } d \in [22, 29]$
 C. $a \in [10, 22], b \in [-70, -60], c \in [74, 80], \text{ and } d \in [-24, -18]$
 D. $a \in [10, 22], b \in [-24, -20], c \in [-64, -57], \text{ and } d \in [22, 29]$
 E. $a \in [10, 22], b \in [18, 27], c \in [-64, -57], \text{ and } d \in [22, 29]$

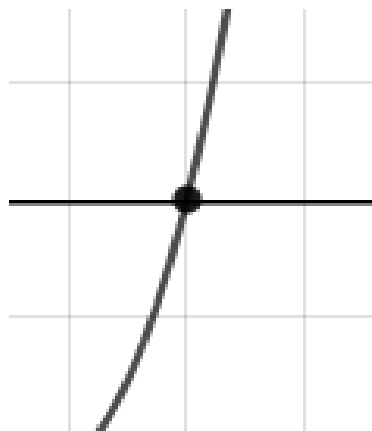
8. Describe the zero behavior of the zero $x = 9$ of the polynomial below.

$$f(x) = 7(x-9)^6(x+9)^7(x-6)^7(x+6)^{11}$$





C.



D.

E. None of the above.

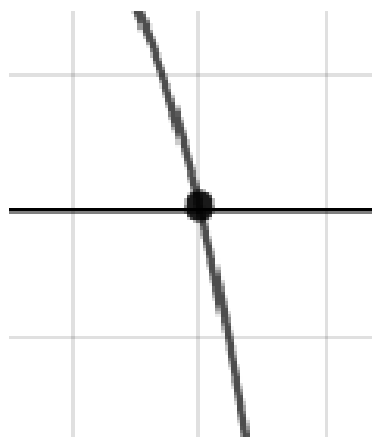
9. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$-4 - 3i \text{ and } -2$$

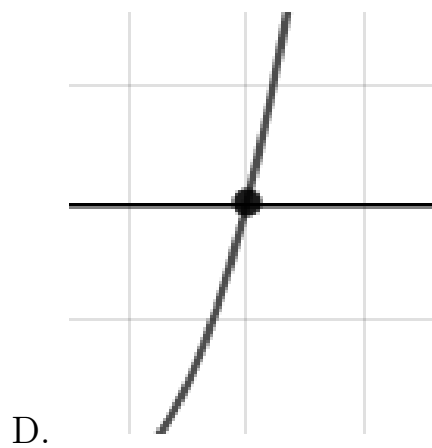
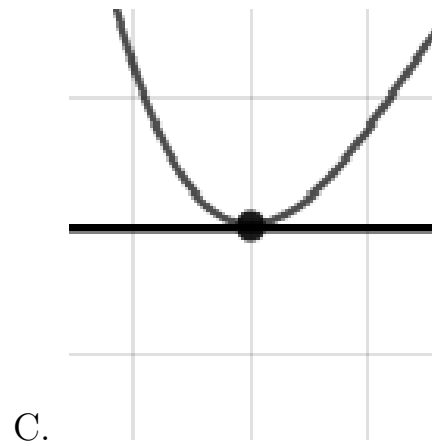
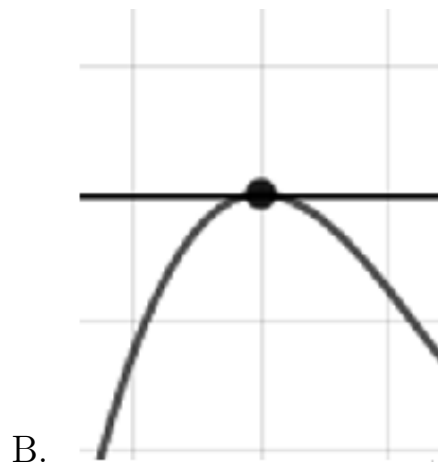
- A. $b \in [0, 7], c \in [3.09, 5.81]$, and $d \in [5.4, 7.3]$
 B. $b \in [-10, -3], c \in [40.53, 42.29]$, and $d \in [-52, -49.7]$
 C. $b \in [9, 16], c \in [40.53, 42.29]$, and $d \in [49, 50.4]$
 D. $b \in [0, 7], c \in [5.46, 7.06]$, and $d \in [7, 11.7]$
 E. None of the above.

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

$$f(x) = 2(x + 5)^3(x - 5)^8(x + 7)^9(x - 7)^{10}$$



A.



E. None of the above.