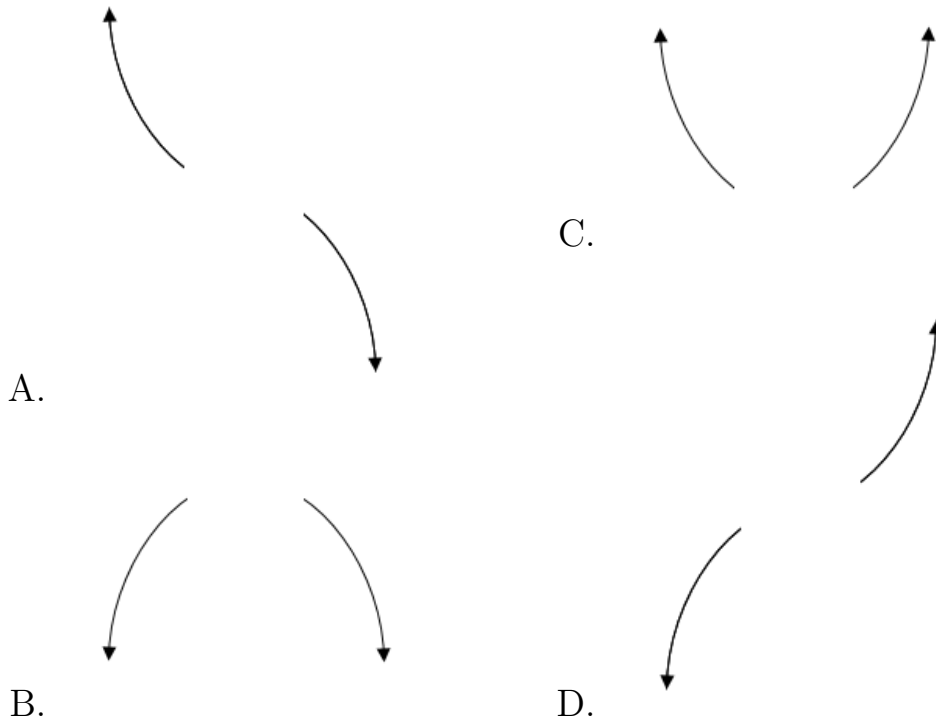


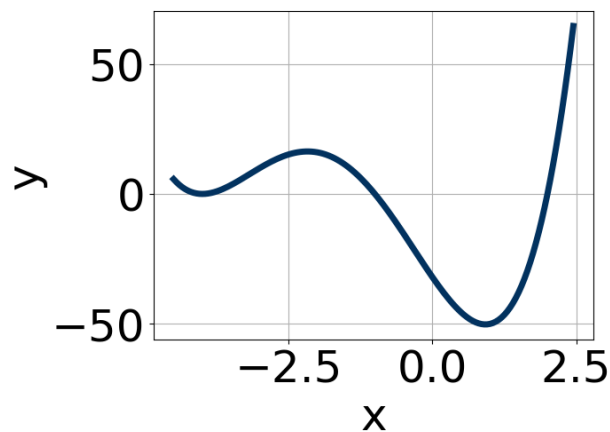
1. Describe the end behavior of the polynomial below.

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



E. None of the above.

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



- A. $-4(x + 4)^6(x - 2)^9(x + 1)^{11}$
 B. $16(x + 4)^6(x - 2)^4(x + 1)^5$

- C. $-16(x+4)^{10}(x-2)^{11}(x+1)^{10}$
D. $13(x+4)^9(x-2)^8(x+1)^7$
E. $19(x+4)^4(x-2)^7(x+1)^7$
-

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

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

- A. $a \in [72, 77], b \in [-130, -118], c \in [63, 76], \text{ and } d \in [-16, -11]$
B. $a \in [72, 77], b \in [-30, -21], c \in [-35, -29], \text{ and } d \in [9, 15]$
C. $a \in [72, 77], b \in [-38, -33], c \in [-30, -21], \text{ and } d \in [9, 15]$
D. $a \in [72, 77], b \in [24, 26], c \in [-35, -29], \text{ and } d \in [-16, -11]$
E. $a \in [72, 77], b \in [-30, -21], c \in [-35, -29], \text{ and } d \in [-16, -11]$
-

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

$$-4 - 5i \text{ and } 1$$

- A. $b \in [-11, -2], c \in [30.6, 36.6], \text{ and } d \in [35.9, 45.1]$
B. $b \in [0, 5], c \in [3.2, 6.3], \text{ and } d \in [-5.5, -4.6]$
C. $b \in [0, 5], c \in [2.1, 3.5], \text{ and } d \in [-4.1, -3.1]$
D. $b \in [6, 10], c \in [30.6, 36.6], \text{ and } d \in [-41.6, -37.1]$
E. None of the above.
-

5. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in

the form $ax^3 + bx^2 + cx + d$.

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

- A. $a \in [-3, 7], b \in [-12, -3], c \in [-85, -77], \text{ and } d \in [25, 30]$
- B. $a \in [-3, 7], b \in [-12, -3], c \in [-85, -77], \text{ and } d \in [-33, -24]$
- C. $a \in [-3, 7], b \in [9, 15], c \in [-85, -77], \text{ and } d \in [-33, -24]$
- D. $a \in [-3, 7], b \in [28, 35], c \in [71, 78], \text{ and } d \in [-33, -24]$
- E. $a \in [-3, 7], b \in [8, 9], c \in [-89, -86], \text{ and } d \in [25, 30]$

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

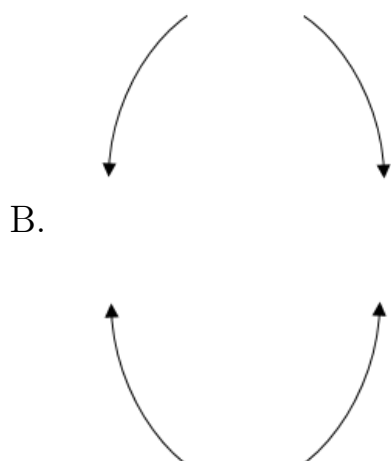
$$-2 - 3i \text{ and } 1$$

- A. $b \in [-4.28, -2.11], c \in [7.59, 9.76], \text{ and } d \in [12.72, 14.46]$
- B. $b \in [0.04, 2.08], c \in [-0.53, 1.89], \text{ and } d \in [-2.5, -1.82]$
- C. $b \in [2.7, 3.9], c \in [7.59, 9.76], \text{ and } d \in [-13.96, -12.08]$
- D. $b \in [0.04, 2.08], c \in [1.44, 2.84], \text{ and } d \in [-3.54, -2.67]$
- E. None of the above.

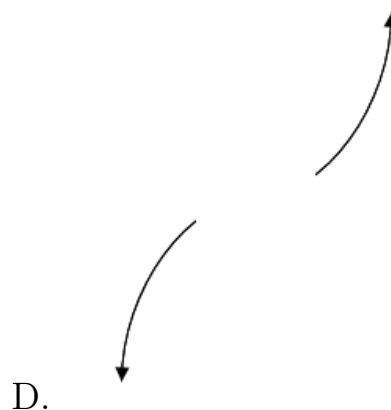
7. Describe the end behavior of the polynomial below.

$$f(x) = 8(x + 4)^4(x - 4)^7(x - 3)^4(x + 3)^4$$





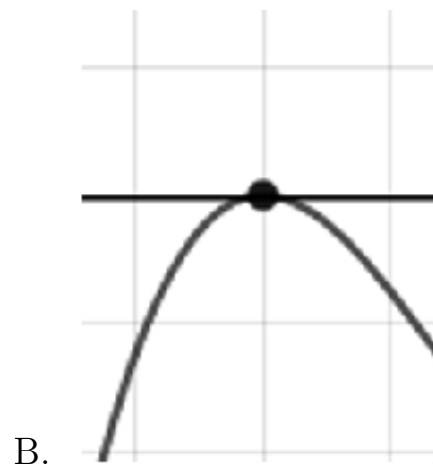
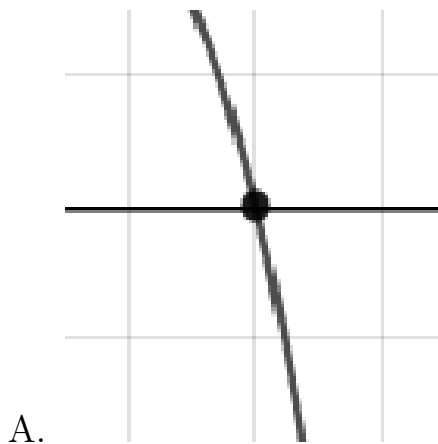
C.



E. None of the above.

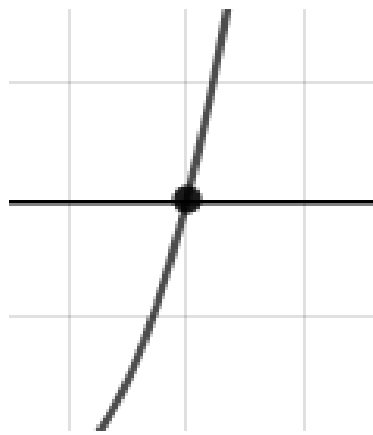
8. Describe the zero behavior of the zero $x = 7$ of the polynomial below.

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





C.

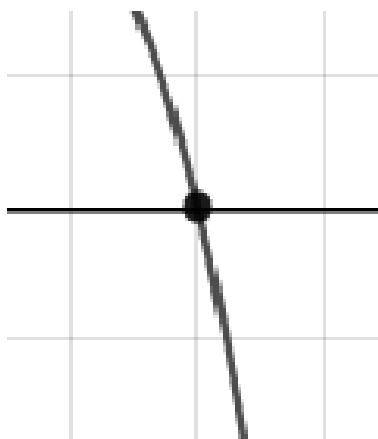


D.

E. None of the above.

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

$$f(x) = 2(x + 4)^{13}(x - 4)^9(x + 9)^5(x - 9)^4$$



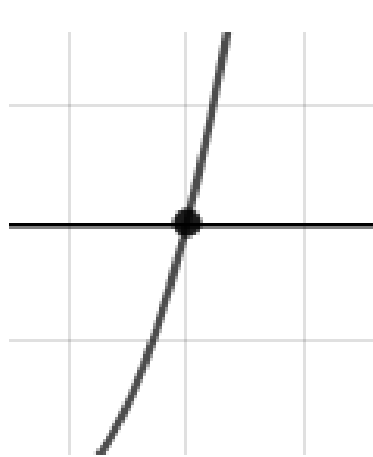
A.



C.



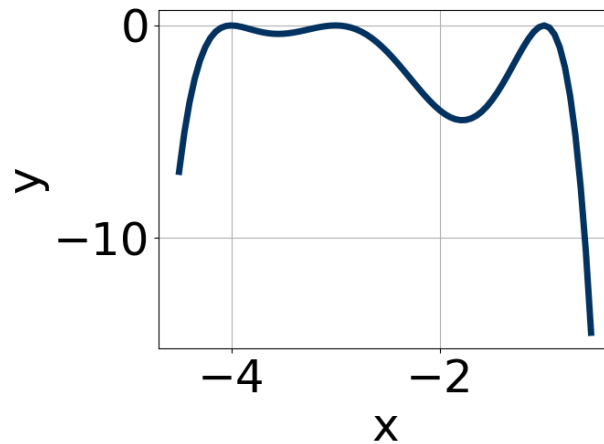
B.



D.

E. None of the above.

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



- A. $-11(x + 1)^6(x + 4)^{11}(x + 3)^7$
- B. $18(x + 1)^4(x + 4)^{10}(x + 3)^5$
- C. $-15(x + 1)^4(x + 4)^6(x + 3)^6$
- D. $19(x + 1)^{10}(x + 4)^4(x + 3)^6$
- E. $-15(x + 1)^{10}(x + 4)^6(x + 3)^{11}$