

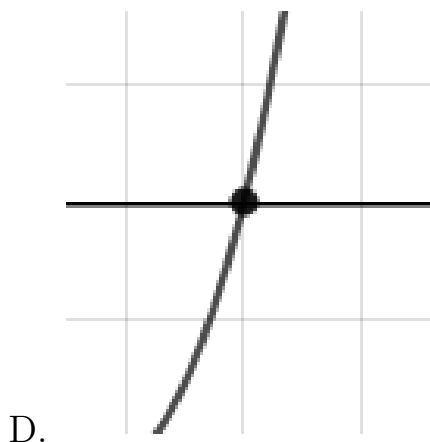
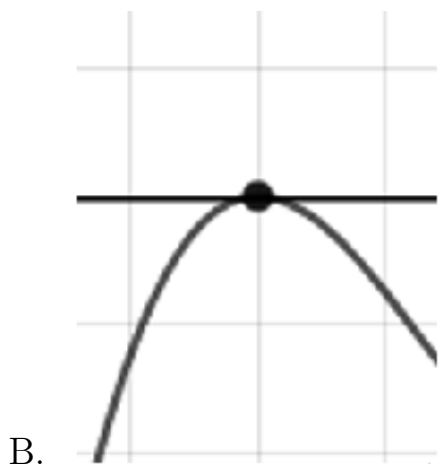
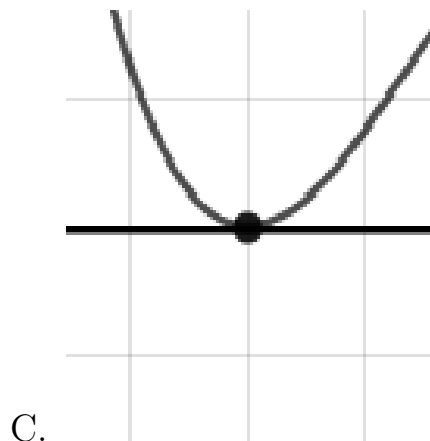
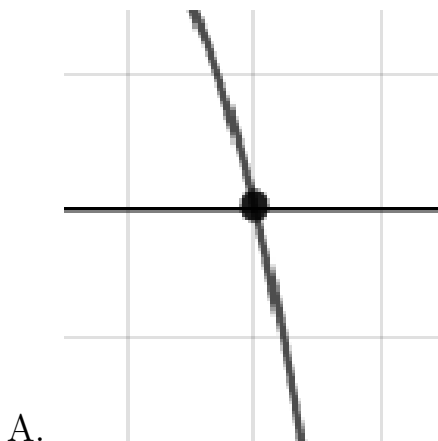
1. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$-\frac{2}{5}, -6, \text{ and } \frac{4}{3}$$

- A. $a \in [12, 19], b \in [72, 81], c \in [-96, -91], \text{ and } d \in [47, 50]$
 B. $a \in [12, 19], b \in [72, 81], c \in [-96, -91], \text{ and } d \in [-54, -45]$
 C. $a \in [12, 19], b \in [58, 66], c \in [-152, -146], \text{ and } d \in [47, 50]$
 D. $a \in [12, 19], b \in [-79, -73], c \in [-96, -91], \text{ and } d \in [47, 50]$
 E. $a \in [12, 19], b \in [-124, -115], c \in [159, 171], \text{ and } d \in [-54, -45]$

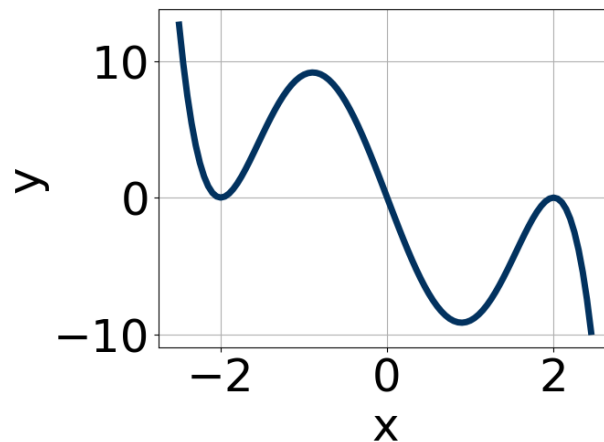
2. Describe the zero behavior of the zero $x = 4$ of the polynomial below.

$$f(x) = -6(x + 3)^{11}(x - 3)^7(x + 4)^9(x - 4)^4$$



E. None of the above.

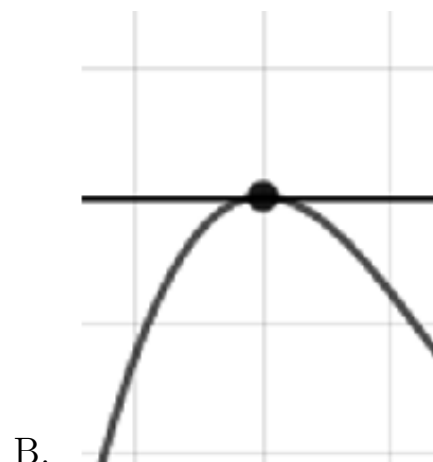
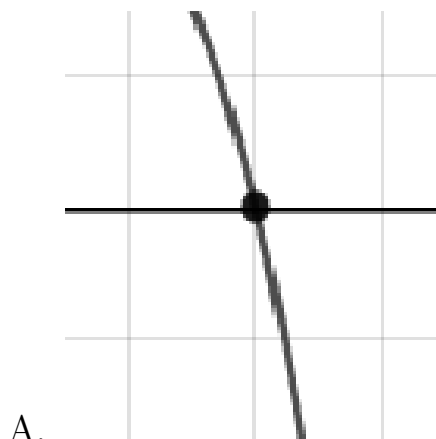
3. Which of the following equations *could* be of the graph presented below?



- A. $11x^{11}(x+2)^6(x-2)^4$
- B. $-7x^9(x+2)^4(x-2)^9$
- C. $-18x^5(x+2)^8(x-2)^8$
- D. $17x^{10}(x+2)^6(x-2)^6$
- E. $-12x^6(x+2)^{10}(x-2)^7$

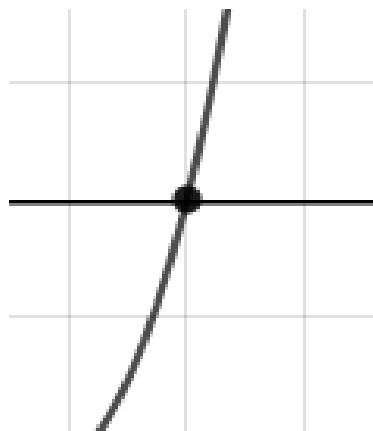
4. Describe the zero behavior of the zero $x = -3$ of the polynomial below.

$$f(x) = -6(x-3)^8(x+3)^9(x+9)^3(x-9)^5$$





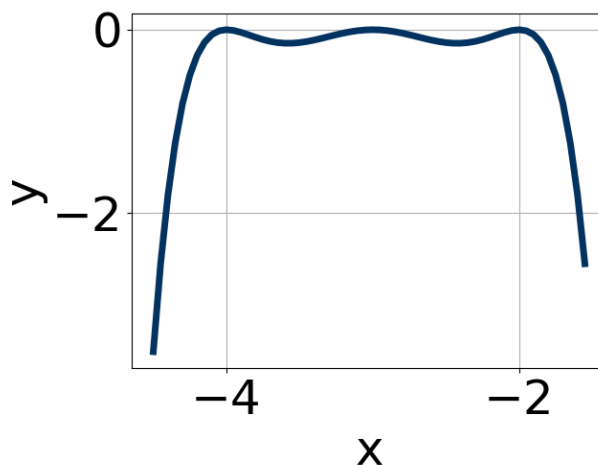
C.



D.

E. None of the above.

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



A. $-4(x+3)^8(x+4)^{11}(x+2)^{11}$

B. $-19(x+3)^8(x+4)^{10}(x+2)^6$

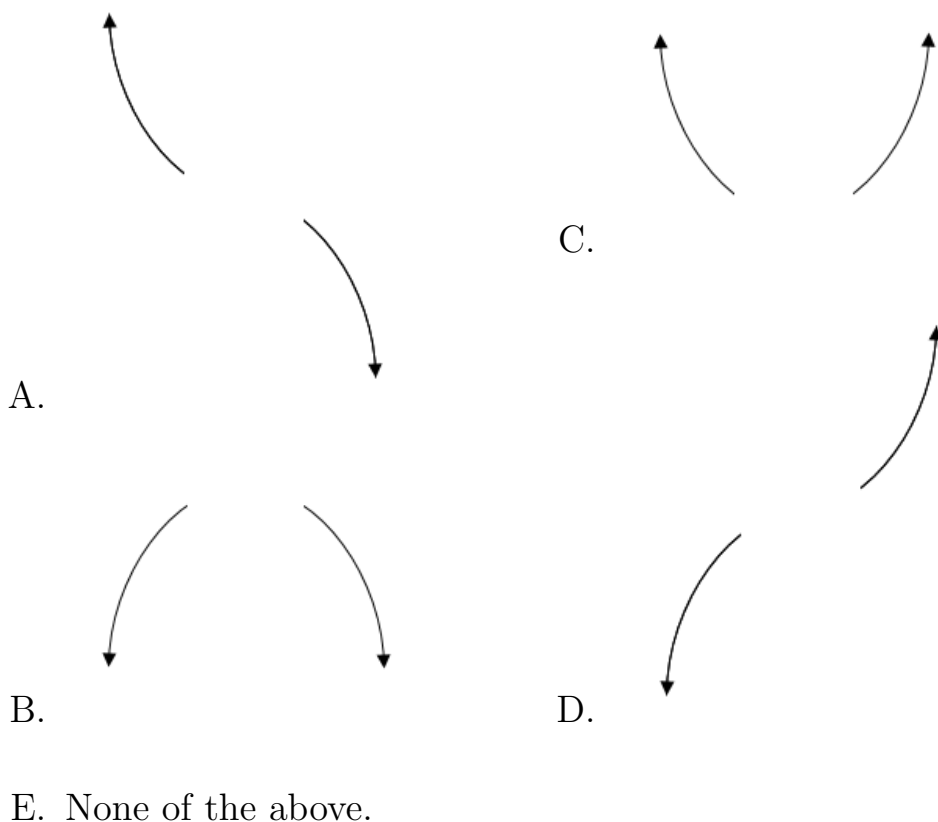
C. $-4(x+3)^4(x+4)^8(x+2)^9$

D. $18(x+3)^{10}(x+4)^6(x+2)^6$

E. $2(x+3)^4(x+4)^4(x+2)^{11}$

6. Describe the end behavior of the polynomial below.

$$f(x) = 3(x-2)^3(x+2)^6(x-3)^3(x+3)^5$$



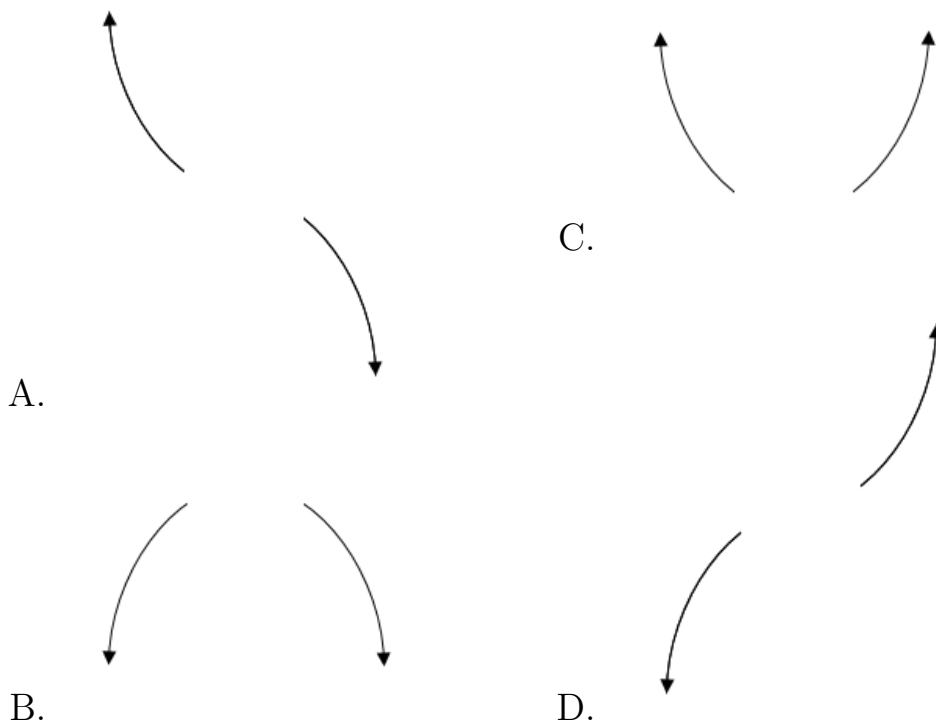
7. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

$$4 + 5i \text{ and } -2$$

- A. $b \in [-7, 0]$, $c \in [24.91, 26.45]$, and $d \in [80.64, 83.45]$
- B. $b \in [-1, 2]$, $c \in [-3.56, -2.79]$, and $d \in [-10.45, -8.73]$
- C. $b \in [2, 10]$, $c \in [24.91, 26.45]$, and $d \in [-84.05, -81.44]$
- D. $b \in [-1, 2]$, $c \in [-2.86, -1.28]$, and $d \in [-9.04, -7.02]$
- E. None of the above.

8. Describe the end behavior of the polynomial below.

$$f(x) = -4(x + 2)^3(x - 2)^4(x - 7)^4(x + 7)^6$$



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 $x^3 + bx^2 + cx + d$.

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

- A. $b \in [-4.2, -2.5]$, $c \in [-14.9, -10.4]$, and $d \in [75, 81]$
- B. $b \in [-1.7, 2.1]$, $c \in [0.3, 5.3]$, and $d \in [-10, -2]$
- C. $b \in [2.9, 6.9]$, $c \in [-14.9, -10.4]$, and $d \in [-82, -79]$
- D. $b \in [-1.7, 2.1]$, $c \in [-0.5, 0.9]$, and $d \in [-20, -13]$
- E. None of the above.

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

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

$$1, -5, \text{ and } \frac{-1}{3}$$

- A. $a \in [-4, 5], b \in [18, 24], c \in [19, 24], \text{ and } d \in [3, 14]$
 - B. $a \in [-4, 5], b \in [11, 14], c \in [-15, -5], \text{ and } d \in [-9, 2]$
 - C. $a \in [-4, 5], b \in [-15, -12], c \in [-15, -5], \text{ and } d \in [3, 14]$
 - D. $a \in [-4, 5], b \in [-12, -6], c \in [-19, -14], \text{ and } d \in [-9, 2]$
 - E. $a \in [-4, 5], b \in [11, 14], c \in [-15, -5], \text{ and } d \in [3, 14]$
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