

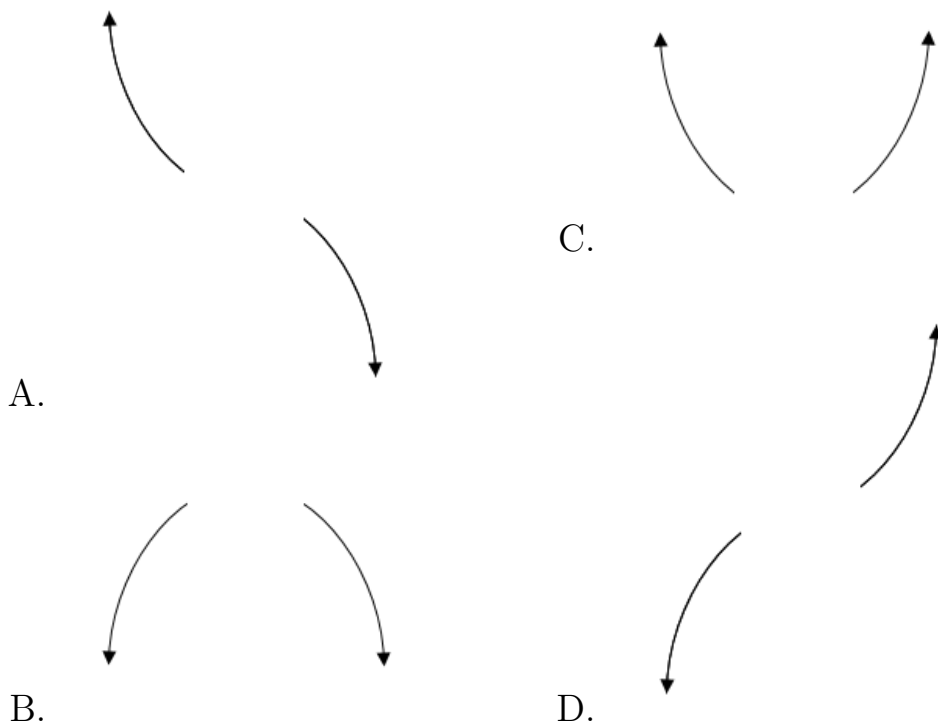
1. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{-3}{2}, \frac{-6}{5}, \text{ and } \frac{7}{4}$$

- A. $a \in [40, 41], b \in [37, 46], c \in [-118, -115],$ and $d \in [-127, -124]$
 B. $a \in [40, 41], b \in [-178, -176], c \in [250, 263],$ and $d \in [-127, -124]$
 C. $a \in [40, 41], b \in [37, 46], c \in [-118, -115],$ and $d \in [126, 127]$
 D. $a \in [40, 41], b \in [-47, -32], c \in [-118, -115],$ and $d \in [126, 127]$
 E. $a \in [40, 41], b \in [-82, -80], c \in [-56, -48],$ and $d \in [126, 127]$

2. Describe the end behavior of the polynomial below.

$$f(x) = 6(x - 5)^4(x + 5)^7(x + 9)^3(x - 9)^5$$



- E. None of the above.

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

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

- A. $b \in [0, 1.7], c \in [-4.1, -3.6],$ and $d \in [-27, -20]$
 - B. $b \in [-3.8, 0.8], c \in [-4.1, -3.6],$ and $d \in [21, 27]$
 - C. $b \in [0, 1.7], c \in [-5.5, -4.1],$ and $d \in [6, 7]$
 - D. $b \in [0, 1.7], c \in [-3.9, 3.7],$ and $d \in [-9, -3]$
 - E. None of the above.
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4. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

$$\frac{7}{4}, \frac{1}{4}, \text{ and } \frac{2}{3}$$

- A. $a \in [44, 56], b \in [126, 137], c \in [81, 90],$ and $d \in [11, 17]$
 - B. $a \in [44, 56], b \in [-135, -118], c \in [81, 90],$ and $d \in [11, 17]$
 - C. $a \in [44, 56], b \in [63, 68], c \in [-46, -41],$ and $d \in [-14, -7]$
 - D. $a \in [44, 56], b \in [-135, -118], c \in [81, 90],$ and $d \in [-14, -7]$
 - E. $a \in [44, 56], b \in [39, 42], c \in [-69, -65],$ and $d \in [11, 17]$
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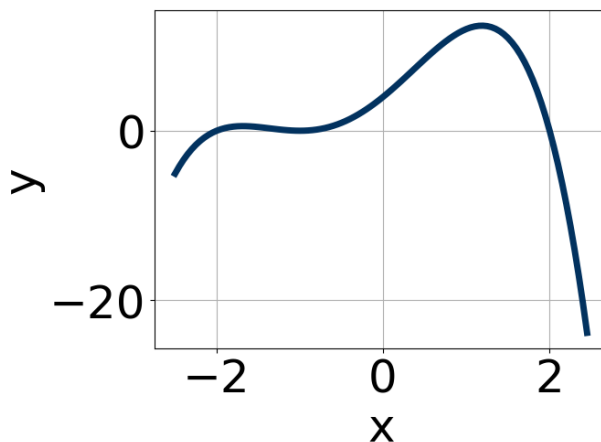
5. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

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

- A. $b \in [0.54, 1.9], c \in [-1, 4],$ and $d \in [-4, -2]$
- B. $b \in [1.49, 3.68], c \in [5, 7],$ and $d \in [-31, -17]$

- C. $b \in [0.54, 1.9]$, $c \in [5, 7]$, and $d \in [4, 8]$
 D. $b \in [-2.47, -1.16]$, $c \in [5, 7]$, and $d \in [19, 30]$
 E. None of the above.

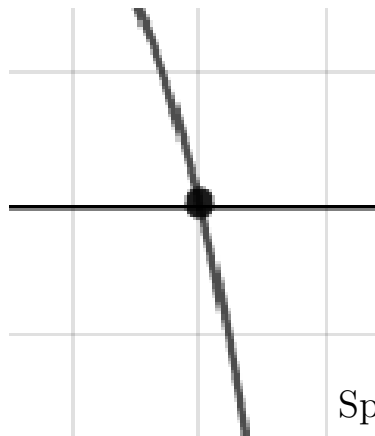
6. Which of the following equations *could* be of the graph presented below?



- A. $-11(x + 1)^{10}(x + 2)^{10}(x - 2)^7$
 B. $-9(x + 1)^6(x + 2)^{11}(x - 2)^5$
 C. $4(x + 1)^8(x + 2)^5(x - 2)^9$
 D. $-14(x + 1)^5(x + 2)^6(x - 2)^5$
 E. $10(x + 1)^8(x + 2)^{11}(x - 2)^8$

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

$$f(x) = 5(x + 5)^{12}(x - 5)^8(x - 7)^{10}(x + 7)^5$$



A.

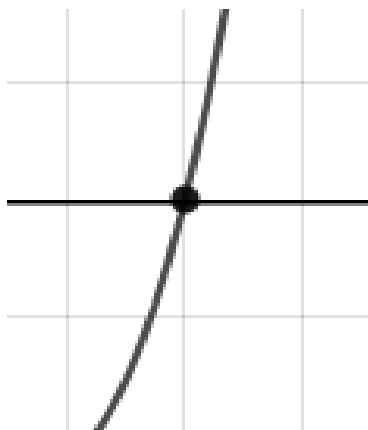
B.



C.



D.

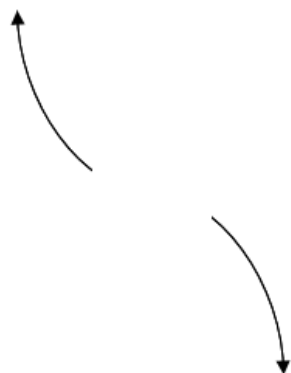


E. None of the above.

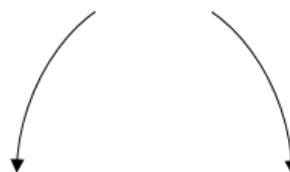
8. Describe the end behavior of the polynomial below.


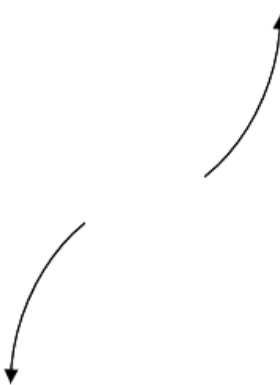
$$f(x) = -8(x + 7)^2(x - 7)^3(x + 5)^2(x - 5)^3$$

A.

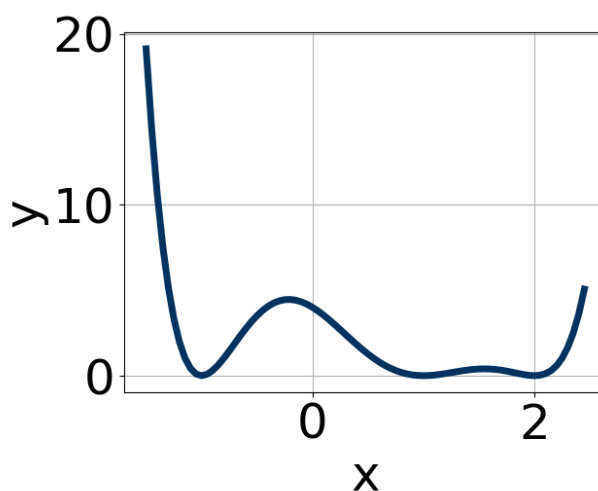


B.



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

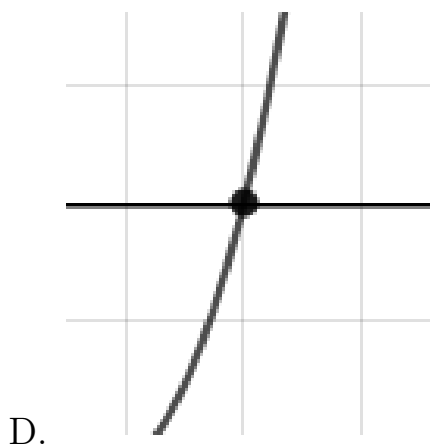
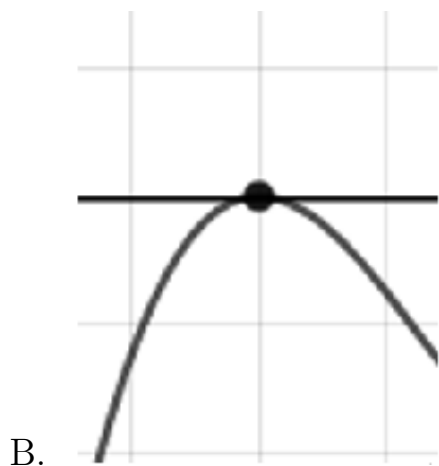
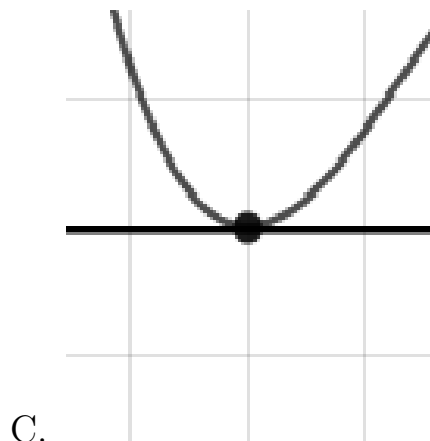
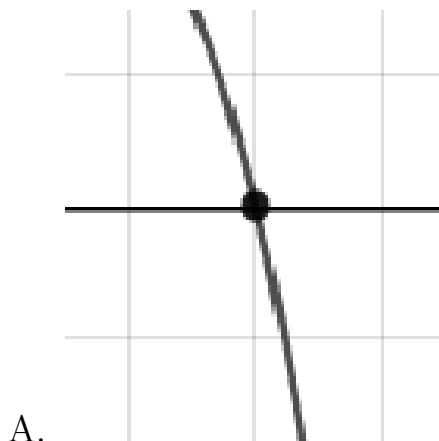
9. Which of the following equations *could* be of the graph presented below?



- A. $14(x - 2)^8(x - 1)^7(x + 1)^5$
- B. $12(x - 2)^4(x - 1)^{10}(x + 1)^9$
- C. $-3(x - 2)^6(x - 1)^{10}(x + 1)^8$
- D. $2(x - 2)^4(x - 1)^4(x + 1)^6$
- E. $-6(x - 2)^{10}(x - 1)^4(x + 1)^9$

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

$$f(x) = -5(x + 3)^7(x - 3)^5(x + 8)^6(x - 8)^3$$



E. None of the above.