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

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

A. $a \in [11, 24], b \in [26, 35], c \in [-50, -44],$ and $d \in [14, 21]$

B. $a \in [11, 24], b \in [-29, -26], c \in [-50, -44],$ and $d \in [-16, -12]$

C. $a \in [11, 24], b \in [39, 45], c \in [3, 4],$ and $d \in [-16, -12]$

D. $a \in [11, 24], b \in [26, 35], c \in [-50, -44],$ and $d \in [-16, -12]$

E. $a \in [11, 24], b \in [50, 60], c \in [53, 61],$ and $d \in [14, 21]$

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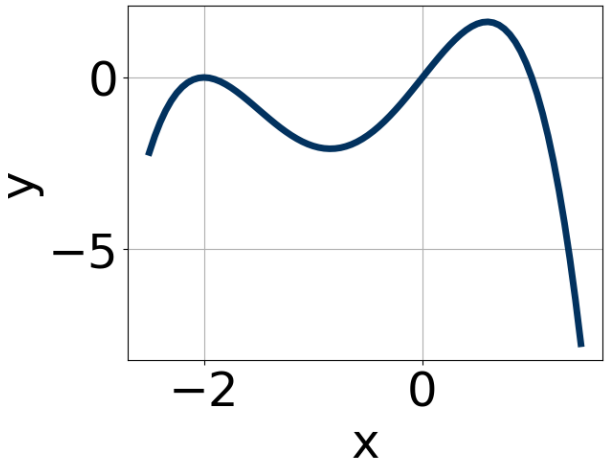
2. Which of the following equations *could* be of the graph presented below?



A. $9x^8(x+2)^4(x-1)^9$

B. $-2x^5(x+2)^8(x-1)^4$

C. $13x^{11}(x+2)^{10}(x-1)^7$

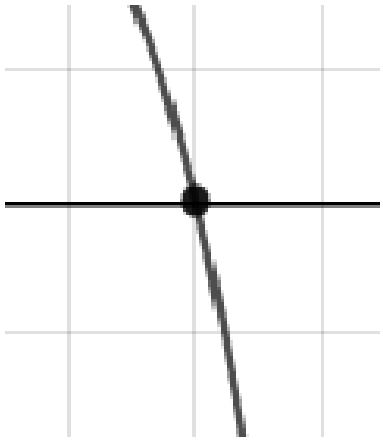
D. $-3x^7(x+2)^8(x-1)^{11}$

E. $-9x^5(x+2)^9(x-1)^8$

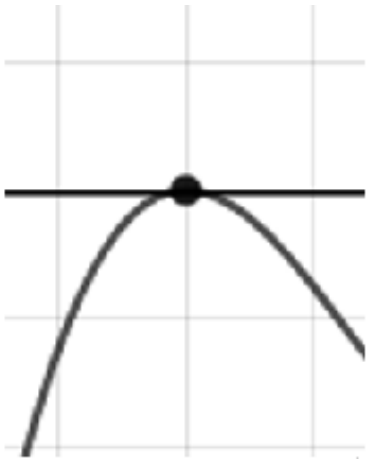
---

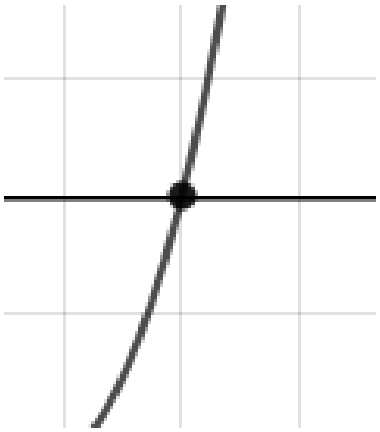
3. Describe the zero behavior of the zero $x = 5$ of the polynomial below.

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

A. 

C. 

B. 

D. 

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

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

A. $b \in [-1, 4], c \in [-0.36, 1.69],$ and $d \in [-6.6, -3.6]$

B. $b \in [5, 9], c \in [8.74, 10.07],$ and $d \in [-50.9, -49.8]$

C. $b \in [-1, 4], c \in [1.92, 2.59],$ and $d \in [-10.8, -6.9]$

D. $b \in [-6, 0], c \in [8.74, 10.07],$ and $d \in [49.5, 51.7]$

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

$$\frac{-7}{5}, \frac{1}{3}, \text{ and } \frac{1}{5}$$

A. $a \in [75, 82], b \in [-95, -92], c \in [-21, -16],$ and $d \in [1, 10]$

B. $a \in [75, 82], b \in [61, 66], c \in [-52, -46],$ and $d \in [1, 10]$

C. $a \in [75, 82], b \in [61, 66], c \in [-52, -46],$ and $d \in [-14, -6]$

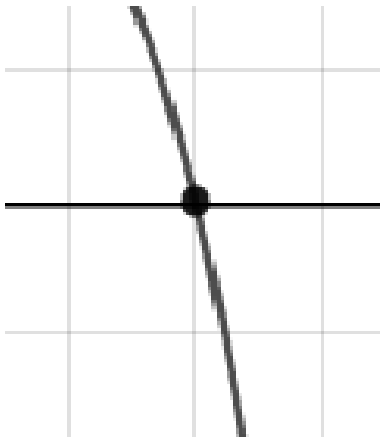
D. $a \in [75, 82], b \in [-68, -60], c \in [-52, -46],$ and $d \in [-14, -6]$

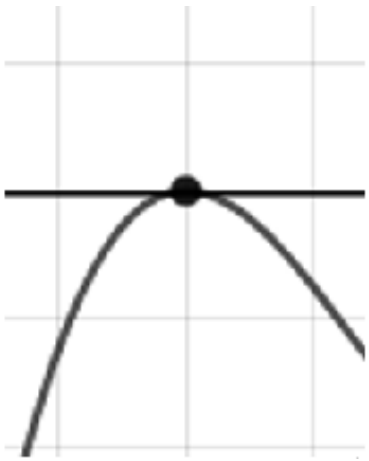
E. $a \in [75, 82], b \in [-148, -139], c \in [57, 65],$ and $d \in [-14, -6]$

---

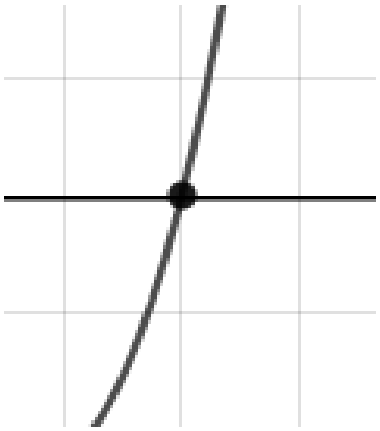
6. Describe the zero behavior of the zero $x = 3$ of the polynomial below.

$$f(x) = -2(x + 3)^5(x - 3)^{10}(x - 6)^4(x + 6)^5$$

A. 

B. 

C. 

D. 

E. None of the above.

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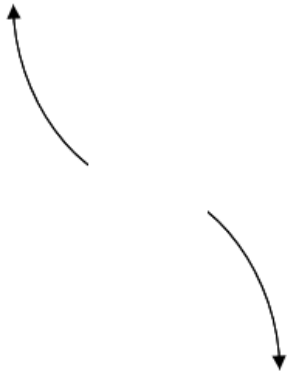
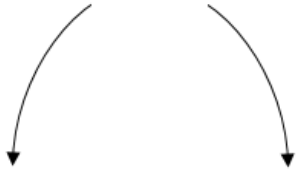
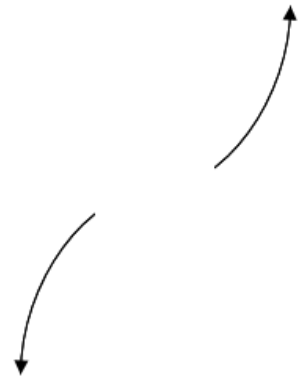
7. Describe the end behavior of the polynomial below.

$$f(x) = 9(x-7)^3(x+7)^8(x+8)^3(x-8)^4$$

A. 

C. 

B. 

D. 

E. None of the above.

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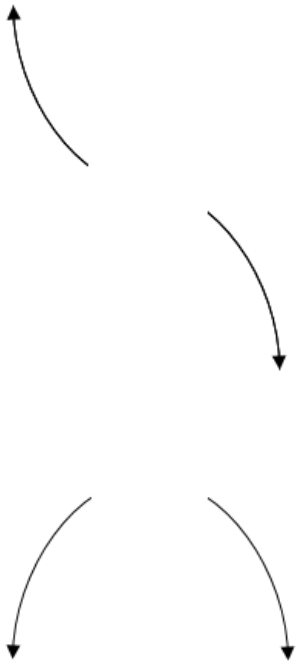
8. Describe the end behavior of the polynomial below.

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

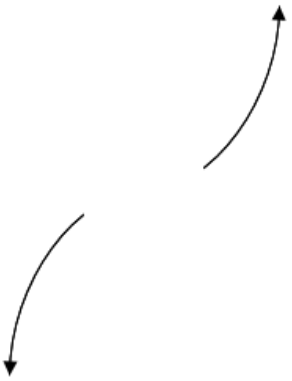
A.



C.

B.

D.



E. None of the above.

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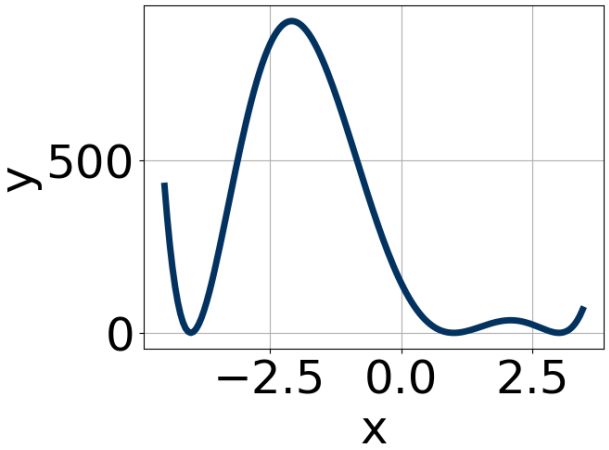
9. Which of the following equations *could* be of the graph presented below?



A. $-20(x+4)^{10}(x-1)^4(x-3)^{10}$

B. $11(x+4)^4(x-1)^5(x-3)^{11}$

C. $5(x+4)^6(x-1)^4(x-3)^4$

D. $14(x+4)^6(x-1)^{10}(x-3)^7$

E. $-8(x+4)^{10}(x-1)^{10}(x-3)^7$

---

10. 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. $b \in [2.8, 4.2], c \in [-12, -8],$ and $d \in [-83, -75]$

B. $b \in [0.1, 2.1], c \in [0, 3],$ and $d \in [-19, -12]$

C. $b \in [-6.4, -3.6], c \in [-12, -8],$ and $d \in [79, 82]$

D. $b \in [0.1, 2.1], c \in [-10, -2],$ and $d \in [7, 12]$

E. None of the above.
