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

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

A. $a \in [1, 3], b \in [4, 18], c \in [-85, -74],$ and $d \in [-296, -290]$

B. $a \in [1, 3], b \in [19, 24], c \in [-10, -5],$ and $d \in [-296, -290]$

C. $a \in [1, 3], b \in [-21, -18], c \in [-10, -5],$ and $d \in [290, 297]$

D. $a \in [1, 3], b \in [19, 24], c \in [-10, -5],$ and $d \in [290, 297]$

E. $a \in [1, 3], b \in [-9, -4], c \in [-96, -85],$ and $d \in [290, 297]$

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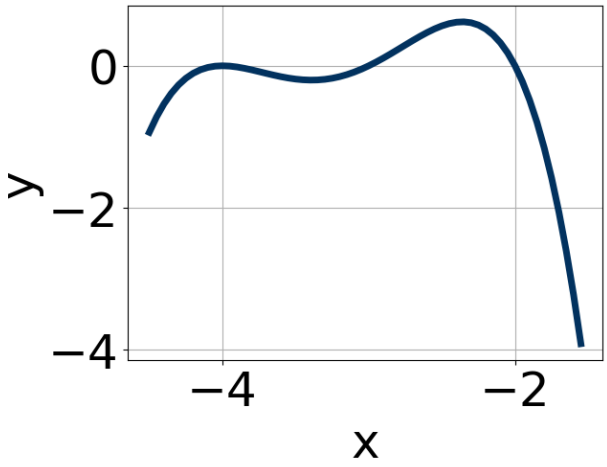
2. Which of the following equations *could* be of the graph presented below?



A. $-3(x + 4)^4(x + 2)^5(x + 3)^5$

B. $-7(x + 4)^9(x + 2)^{10}(x + 3)^5$

C. $10(x + 4)^6(x + 2)^5(x + 3)^6$

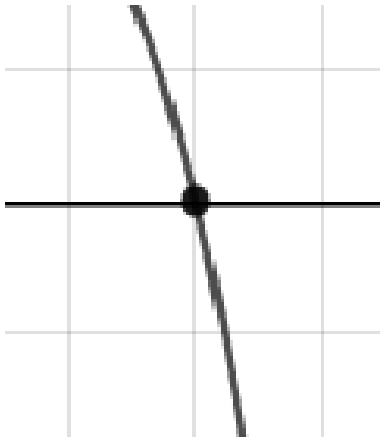
D. $-4(x + 4)^4(x + 2)^4(x + 3)^{11}$

E. $18(x + 4)^4(x + 2)^7(x + 3)^5$

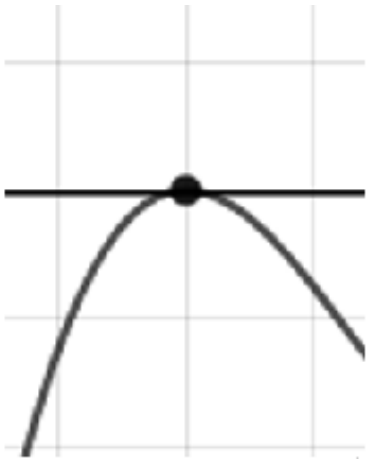
---

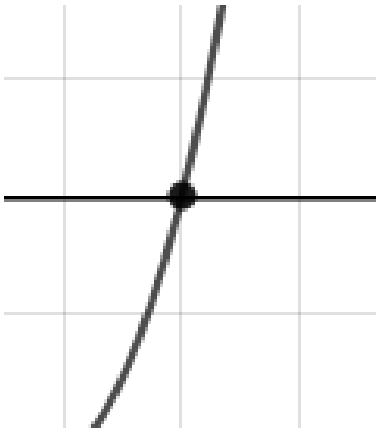
3. Describe the zero behavior of the zero $x = -4$ of the polynomial below.

$$f(x) = 7(x-8)^5(x+8)^2(x+4)^{10}(x-4)^5$$

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

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

A. $b \in [-15, -11], c \in [61, 66],$ and $d \in [-132, -126]$

B. $b \in [4, 17], c \in [61, 66],$ and $d \in [124, 131]$

C. $b \in [-3, 6], c \in [-4, 2],$ and $d \in [-19, -15]$

D. $b \in [-3, 6], c \in [-8, -5],$ and $d \in [16, 20]$

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

$$-2, \frac{-3}{5}, \text{ and } \frac{1}{3}$$

A. $a \in [9, 26], b \in [-32, -20], c \in [-11, -8],$ and $d \in [2, 11]$

B. $a \in [9, 26], b \in [31, 43], c \in [0, 11],$ and $d \in [2, 11]$

C. $a \in [9, 26], b \in [-48, -38], c \in [29, 33],$ and $d \in [-6, -3]$

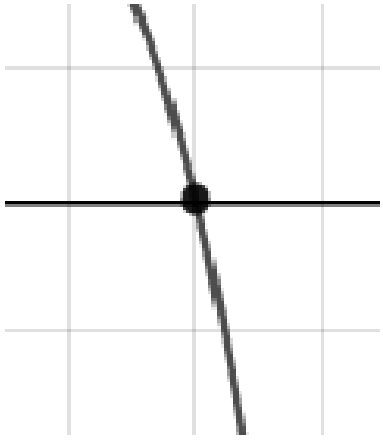
D. $a \in [9, 26], b \in [31, 43], c \in [0, 11],$ and $d \in [-6, -3]$

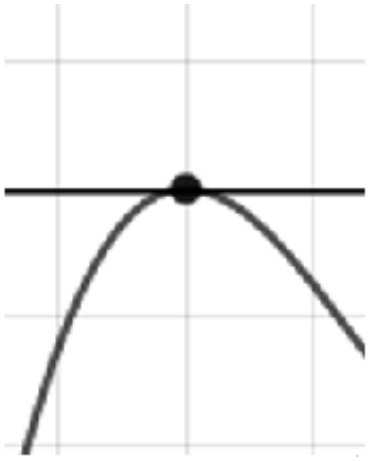
E. $a \in [9, 26], b \in [-34, -33], c \in [0, 11],$ and $d \in [2, 11]$

---

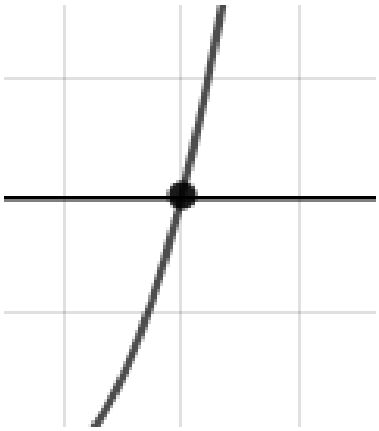
6. Describe the zero behavior of the zero $x = 5$ of the polynomial below.

$$f(x) = 4(x-5)^2(x+5)^5(x+8)^6(x-8)^9$$

A. 

B. 

C. 

D. 

E. None of the above.

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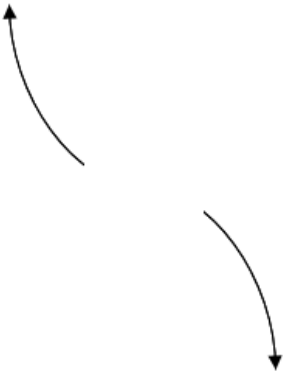
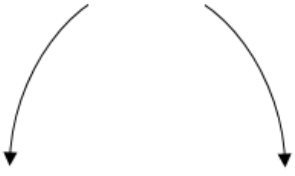
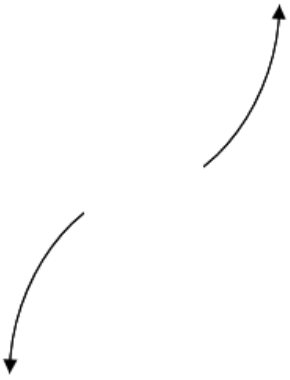
7. Describe the end behavior of the polynomial below.

$$f(x) = -7(x+8)^4(x-8)^9(x+6)^5(x-6)^5$$

A. 

C. 

B. 

D. 

E. None of the above.

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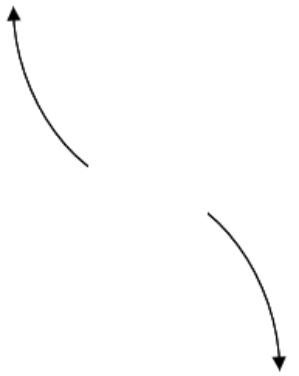
8. Describe the end behavior of the polynomial below.

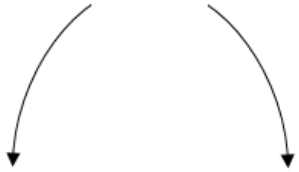
$$f(x) = 6(x+9)^4(x-9)^9(x+5)^5(x-5)^7$$

A.

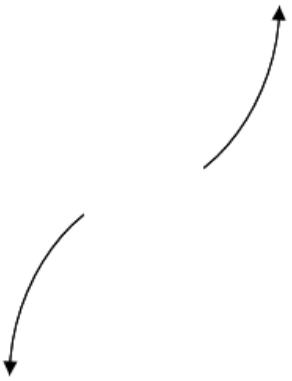


C.

B.



D.



E. None of the above.

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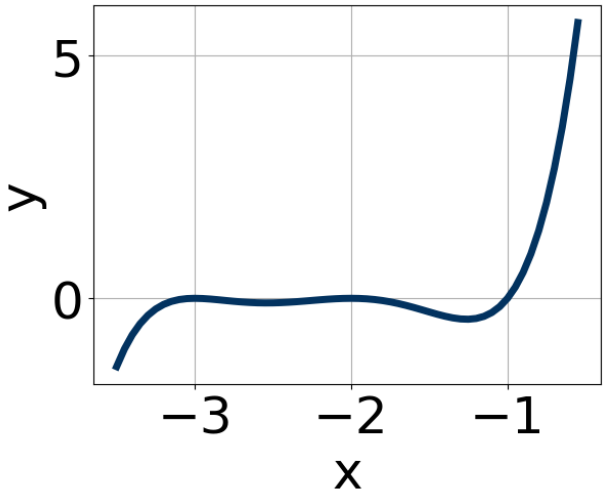
9. Which of the following equations *could* be of the graph presented below?



A. $20(x+3)^6(x+2)^6(x+1)^5$

B. $11(x+3)^8(x+2)^5(x+1)^7$

C. $-11(x+3)^6(x+2)^6(x+1)^7$

D. $18(x+3)^8(x+2)^7(x+1)^{10}$

E. $-14(x+3)^8(x+2)^4(x+1)^{10}$

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

$$5 - 5i \text{ and } 3$$

A. $b \in [-16, -9], c \in [79, 86],$ and $d \in [-157, -147]$

B. $b \in [-8, 10], c \in [2, 7],$ and $d \in [-19, -11]$

C. $b \in [10, 14], c \in [79, 86],$ and $d \in [149, 151]$

D. $b \in [-8, 10], c \in [-9, -2],$ and $d \in [12, 16]$

E. None of the above.
