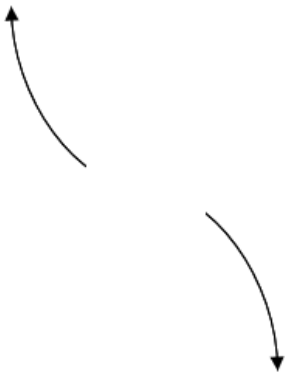
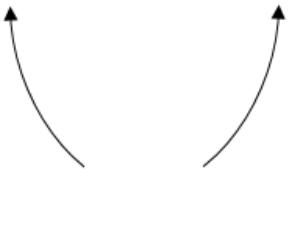
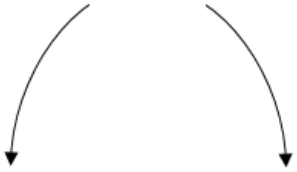
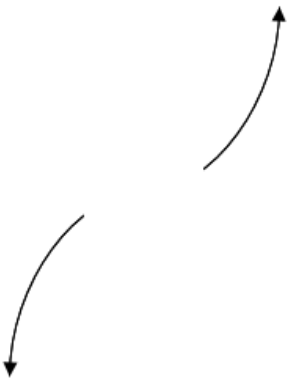
1. Describe the end behavior of the polynomial below.

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

A.


C.


B.


D.


E. None of the above.

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

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

A. $a \in [16, 26], b \in [99, 104], c \in [169, 183],$ and $d \in [92, 109]$

B. $a \in [16, 26], b \in [30, 36], c \in [-66, -61],$ and $d \in [-98, -94]$

C. $a \in [16, 26], b \in [43, 48], c \in [-40, -34],$ and $d \in [-98, -94]$

D. $a \in [16, 26], b \in [-44, -31], c \in [-66, -61],$ and $d \in [92, 109]$

E. $a \in [16, 26], b \in [-44, -31], c \in [-66, -61],$ and $d \in [-98, -94]$

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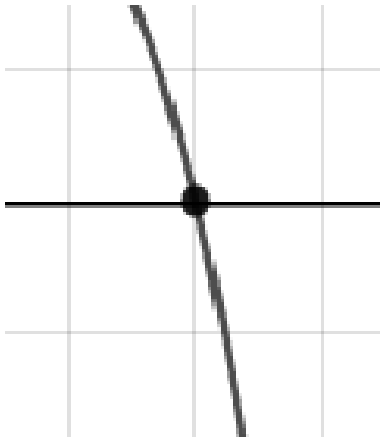
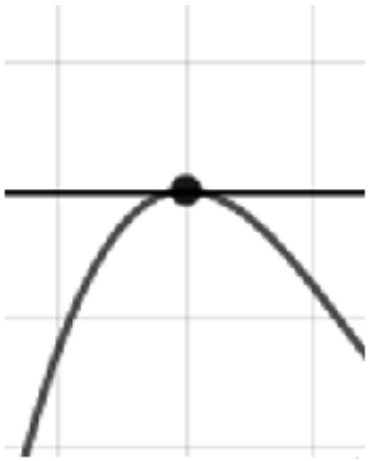
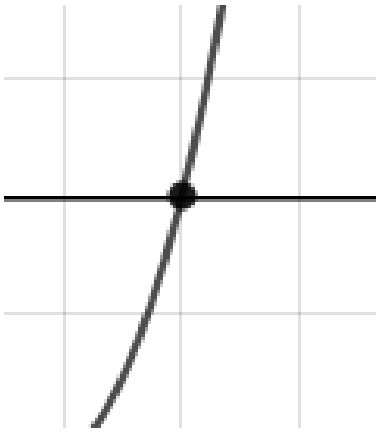
3. Describe the zero behavior of the zero $x = -2$ of the polynomial below.

$$f(x) = 7(x-6)^{11}(x+6)^{8}(x-2)^{4}(x+2)^{3}$$

A. 

C. 

B. 

D. 

E. None of the above.

---

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

$$-3 - 5i \text{ and } 2$$

A. $b \in [0.5, 3.6], c \in [1.5, 3.3],$ and $d \in [-13, -9]$

B. $b \in [-4.5, -1.5], c \in [17.2, 24.6],$ and $d \in [67, 70]$

C. $b \in [0.5, 3.6], c \in [-0.3, 2.4],$ and $d \in [-8, 2]$

D. $b \in [3.9, 4.8], c \in [17.2, 24.6],$ and $d \in [-74, -62]$

E. None of the above.

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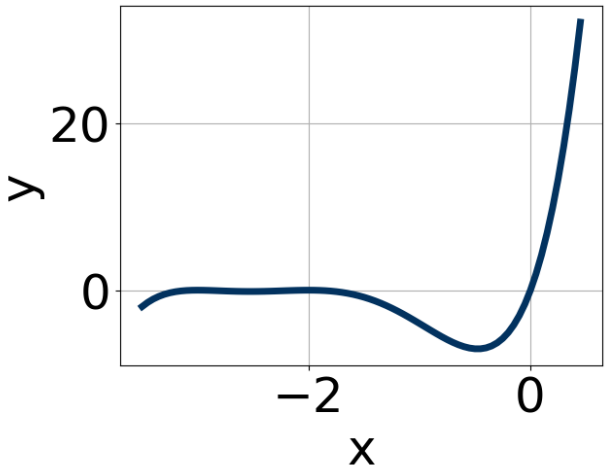
5. Which of the following equations *could* be of the graph presented below?



A. $-15x^8(x+2)^6(x+3)^6$

B. $-16x^7(x+2)^6(x+3)^{10}$

C. $7x^9(x+2)^{10}(x+3)^{10}$

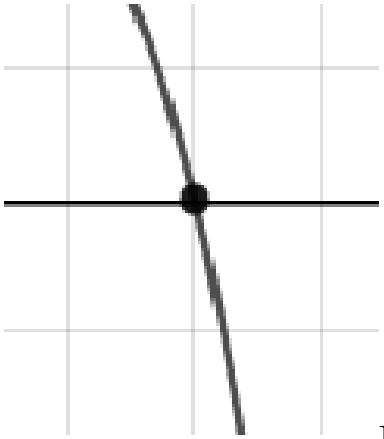
D. $9x^8(x+2)^6(x+3)^9$

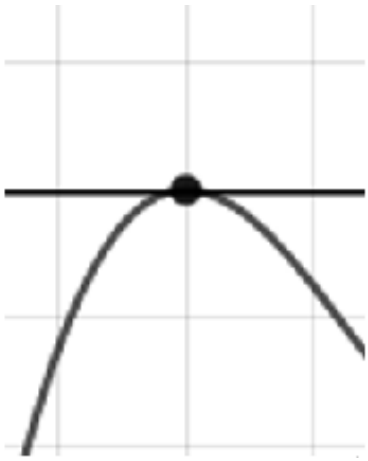
E. $15x^9(x+2)^6(x+3)^5$

---

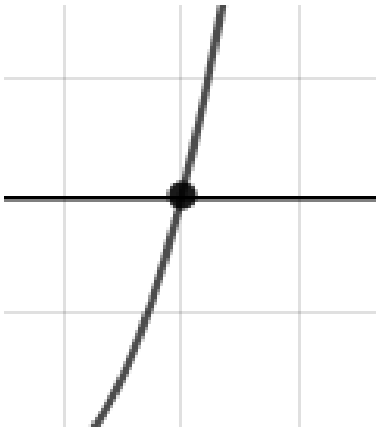
6. Describe the zero behavior of the zero $x = 7$ of the polynomial below.

$$f(x) = 2(x-7)^9(x+7)^{14}(x-8)^8(x+8)^{11}$$

A. 

B. 

C. 

D. 

E. None of the above.

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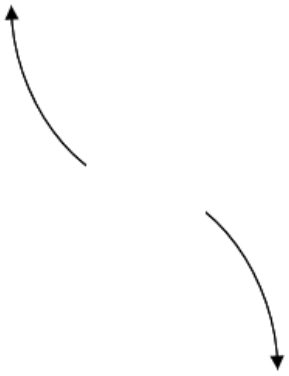
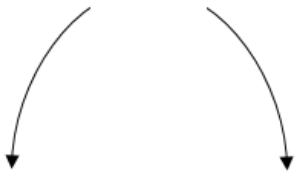
7. Describe the end behavior of the polynomial below.

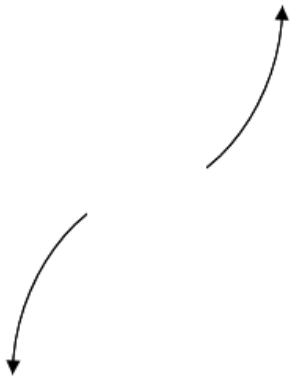
$$f(x) = 8(x-5)^3(x+5)^4(x-9)^4(x+9)^4$$

A. 

B. 

C.

D.



E. None of the above.

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

$$5 - 2i \text{ and } 3$$

A. $b \in [-5, 5], c \in [-10, -7],$ and $d \in [10, 18]$

B. $b \in [-19, -8], c \in [57, 68],$ and $d \in [-88, -85]$

C. $b \in [-5, 5], c \in [-1, 0],$ and $d \in [-14, 2]$

D. $b \in [13, 15], c \in [57, 68],$ and $d \in [82, 95]$

E. None of the above.

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

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

A. $a \in [48, 53], b \in [51, 63], c \in [-47, -44],$ and $d \in [-25, -20]$

B. $a \in [48, 53], b \in [15, 17], c \in [-76, -71],$ and $d \in [20, 33]$

C. $a \in [48, 53], b \in [94, 96], c \in [10, 19],$ and $d \in [-25, -20]$

D. $a \in [48, 53], b \in [-61, -54], c \in [-47, -44],$ and $d \in [20, 33]$

E. $a \in [48, 53], b \in [51, 63], c \in [-47, -44],$ and $d \in [20, 33]$

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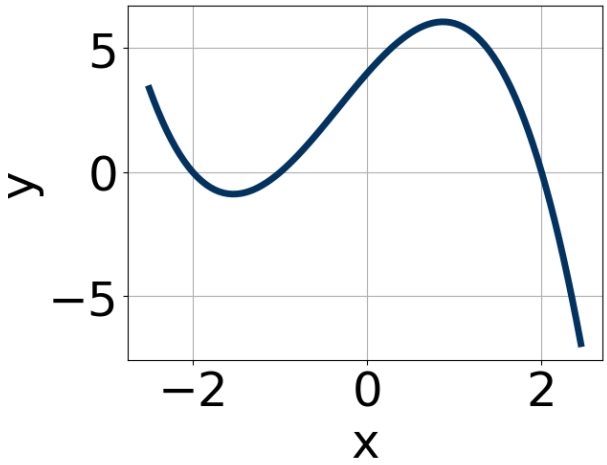
10. Which of the following equations *could* be of the graph presented below?



A. $-14(x-2)^9(x+2)^7(x+1)^{11}$

B. $-15(x-2)^{10}(x+2)^8(x+1)^7$

C. $-9(x-2)^6(x+2)^7(x+1)^9$

D. $18(x-2)^{10}(x+2)^9(x+1)^9$

E. $19(x-2)^5(x+2)^5(x+1)^{11}$
