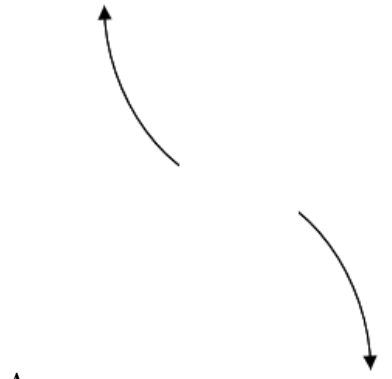
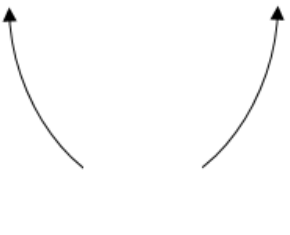
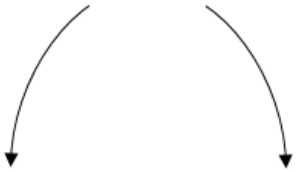
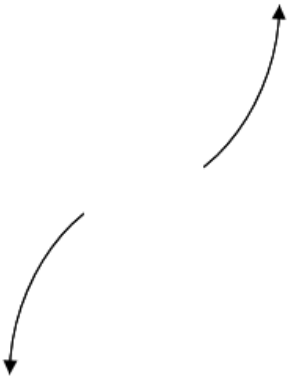
1. Describe the end behavior of the polynomial below.

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

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

$$-2 + 3i \text{ and } x + 1$$

A. $b \in [-1.4, 2.7], c \in [-5.4, -1.8],$ and $d \in [-1, 11]$

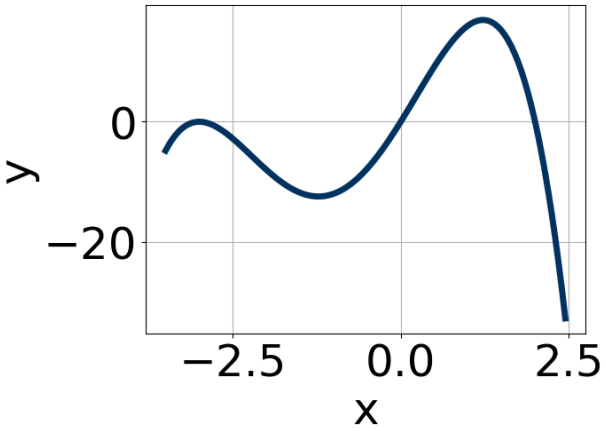
B. $b \in [-1.4, 2.7], c \in [-3.3, 4],$ and $d \in [-6, -1]$

C. $b \in [-3.9, -0.8], c \in [8.2, 12.3],$ and $d \in [9, 21]$

D. $b \in [2, 6.8], c \in [8.2, 12.3],$ and $d \in [-15, -10]$

E. None of the above.

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



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

B. $-18x^9(x+3)^4(x-2)^{11}$

C. $-18x^{10}(x+3)^{10}(x-2)^{11}$

D. $15x^7(x+3)^6(x-2)^{10}$

E. $-11x^6(x+3)^9(x-2)^5$

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.

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

A. $a \in [37,42], b \in [-131,-109], c \in [116,124],$ and $d \in [-40,-34]$

B. $a \in [37,42], b \in [116,124], c \in [116,124],$ and $d \in [32,40]$

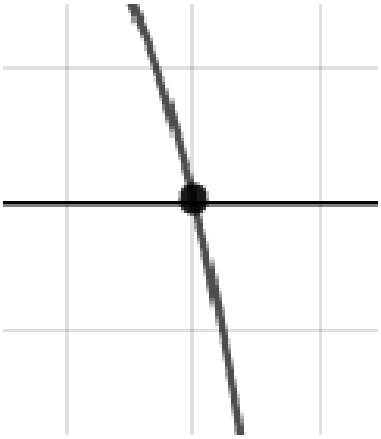
C. $a \in [37,42], b \in [-131,-109], c \in [116,124],$ and $d \in [32,40]$

D. $a \in [37,42], b \in [-62,-57], c \in [-28,-24],$ and $d \in [32,40]$

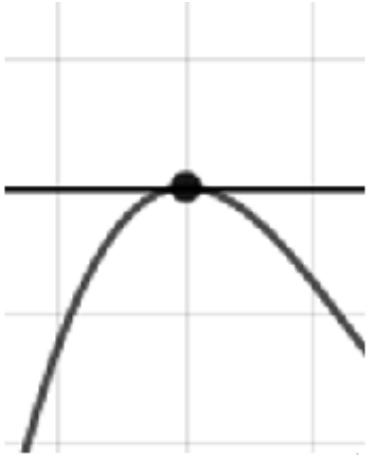
E. $a \in [37,42], b \in [-2,6], c \in [-72,-67],$ and $d \in [-40,-34]$

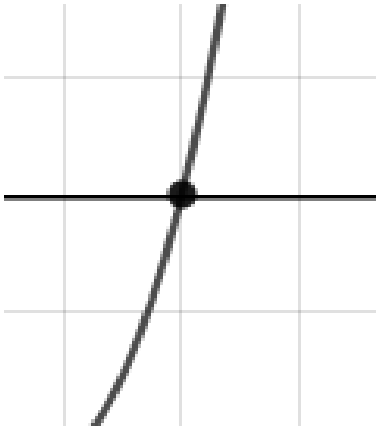
5. Describe the zero behavior of the zero $x = 9$ of the polynomial below.

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

A. 

C. 

B. 

D. 

E. None of the above.