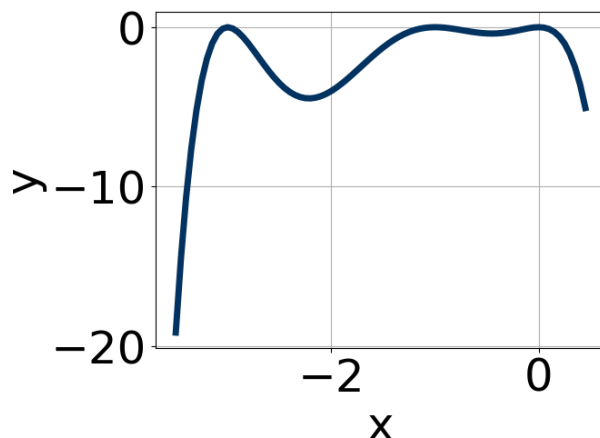


1. Which of the following equations *could* be of the graph presented below?



- A. $-15x^8(x+1)^7(x+3)^{11}$
 B. $-19x^6(x+1)^4(x+3)^8$
 C. $-8x^6(x+1)^4(x+3)^5$
 D. $8x^{10}(x+1)^6(x+3)^7$
 E. $4x^6(x+1)^4(x+3)^8$

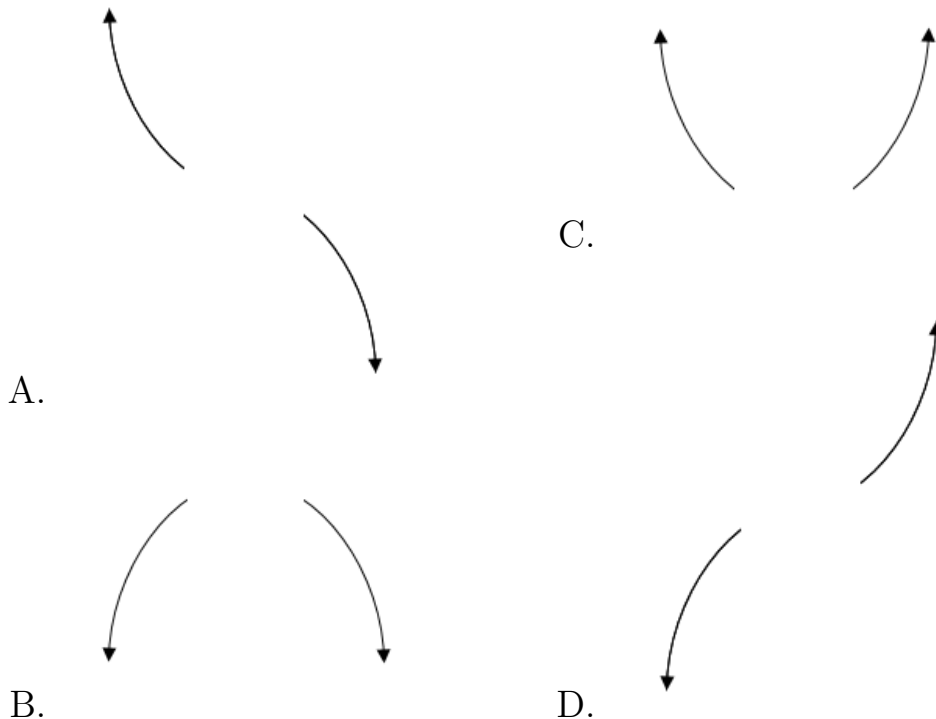
2. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $ax^3 + bx^2 + cx + d$.

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

- A. $a \in [91, 101], b \in [-217, -213], c \in [152, 155], \text{ and } d \in [-40, -29]$
 B. $a \in [91, 101], b \in [54, 60], c \in [-67, -59], \text{ and } d \in [-40, -29]$
 C. $a \in [91, 101], b \in [213, 218], c \in [152, 155], \text{ and } d \in [33, 38]$
 D. $a \in [91, 101], b \in [213, 218], c \in [152, 155], \text{ and } d \in [-40, -29]$
 E. $a \in [91, 101], b \in [-103, -91], c \in [-36, -30], \text{ and } d \in [33, 38]$

3. Describe the end behavior of the polynomial below.

$$f(x) = 8(x - 9)^2(x + 9)^3(x - 3)^5(x + 3)^5$$



E. None of the above.

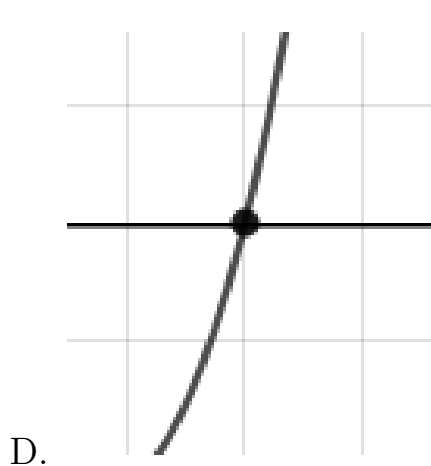
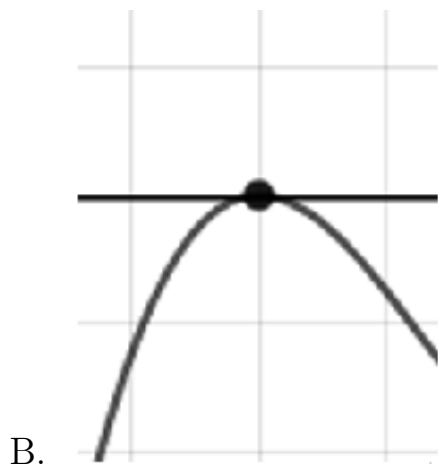
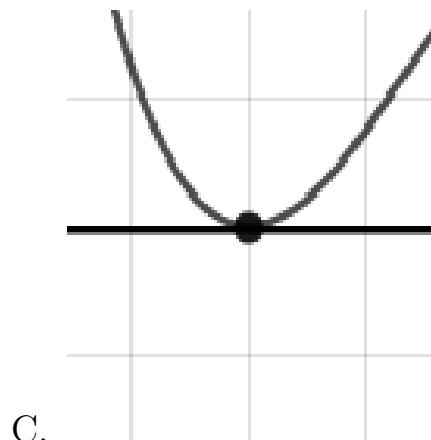
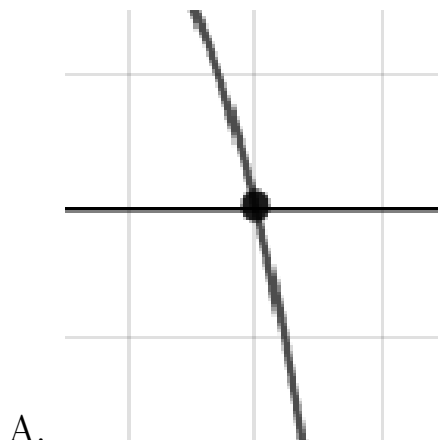
4. Construct the lowest-degree polynomial given the zeros below. Then, choose the intervals that contain the coefficients of the polynomial in the form $x^3 + bx^2 + cx + d$.

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

- A. $b \in [-0.55, 0.3]$, $c \in [-3.37, -2.62]$, and $d \in [-55, -49]$
- B. $b \in [0.39, 1.57]$, $c \in [-1.54, -0.37]$, and $d \in [-21, -11]$
- C. $b \in [-0.55, 0.3]$, $c \in [-3.37, -2.62]$, and $d \in [50, 54]$
- D. $b \in [0.39, 1.57]$, $c \in [-2.16, -1.42]$, and $d \in [-11, -4]$
- E. None of the above.

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

$$f(x) = 4(x + 5)^6(x - 5)^2(x - 8)^7(x + 8)^6$$



- E. None of the above.