

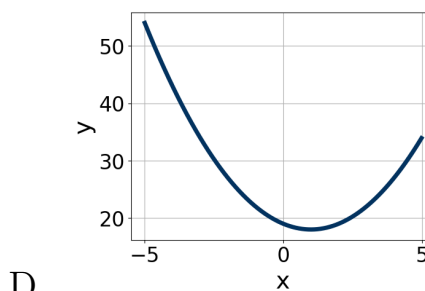
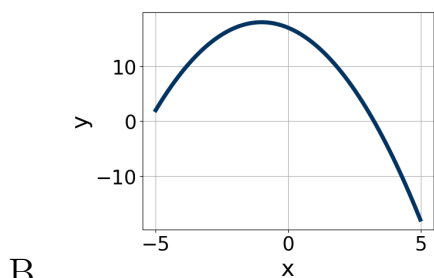
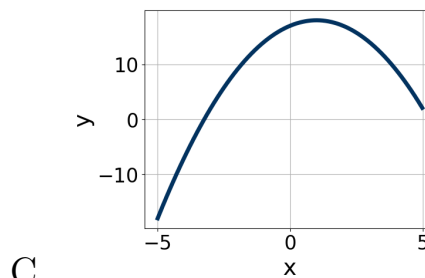
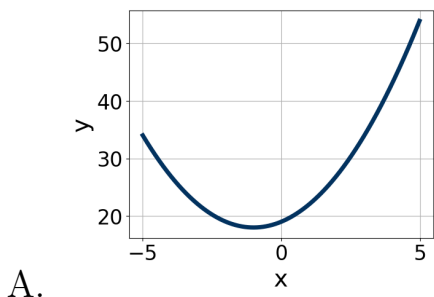
1. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d)$ ;  $b \leq d$ .

$$54x^2 - 15x - 25$$

- A.  $a \in [1.54, 2.3]$ ,  $b \in [-6, -3]$ ,  $c \in [26.6, 27.9]$ , and  $d \in [0, 6]$   
 B.  $a \in [-0.19, 1.84]$ ,  $b \in [-51, -43]$ ,  $c \in [0.6, 1.8]$ , and  $d \in [22, 34]$   
 C.  $a \in [17.45, 18.5]$ ,  $b \in [-6, -3]$ ,  $c \in [2.5, 3.2]$ , and  $d \in [0, 6]$   
 D.  $a \in [4.96, 7.25]$ ,  $b \in [-6, -3]$ ,  $c \in [8.6, 10.3]$ , and  $d \in [0, 6]$   
 E. None of the above.

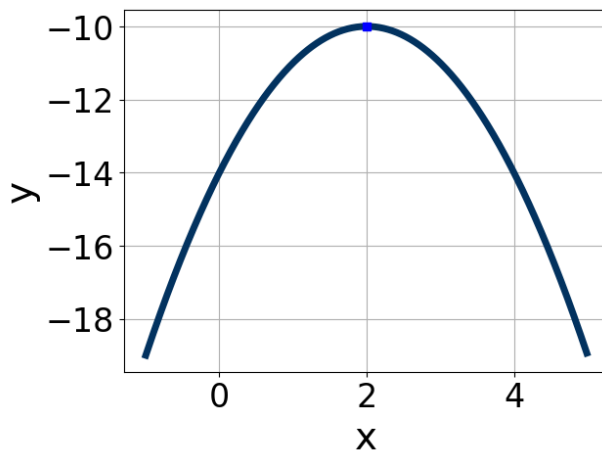
2. Graph the equation below.

$$f(x) = (x + 1)^2 + 18$$



- E. None of the above.

3. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a, b$ , and  $c$  belong to.



- A.  $a \in [0.1, 2.3]$ ,  $b \in [-8, -2]$ , and  $c \in [-7, -5]$   
 B.  $a \in [-1.9, -0.5]$ ,  $b \in [-8, -2]$ , and  $c \in [3, 7]$   
 C.  $a \in [-1.9, -0.5]$ ,  $b \in [-8, -2]$ , and  $c \in [-18, -9]$   
 D.  $a \in [0.1, 2.3]$ ,  $b \in [2, 8]$ , and  $c \in [-7, -5]$   
 E.  $a \in [-1.9, -0.5]$ ,  $b \in [2, 8]$ , and  $c \in [-18, -9]$

4. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$10x^2 + 57x + 54 = 0$$

- A.  $x_1 \in [-45.2, -44.55]$  and  $x_2 \in [-12.27, -11.72]$   
 B.  $x_1 \in [-4.62, -3.84]$  and  $x_2 \in [-1.33, -0.89]$   
 C.  $x_1 \in [-4.29, -3.47]$  and  $x_2 \in [-1.73, -1.44]$   
 D.  $x_1 \in [-9.32, -8.81]$  and  $x_2 \in [-0.76, -0.54]$   
 E.  $x_1 \in [-14.29, -13.16]$  and  $x_2 \in [-0.56, -0.26]$

5. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d)$ ;  $b \leq d$ .

$$54x^2 + 33x - 10$$

- A.  $a \in [17.3, 19.7]$ ,  $b \in [-6, 0]$ ,  $c \in [1.6, 4.3]$ , and  $d \in [5, 7]$

- B.  $a \in [2.4, 4.6]$ ,  $b \in [-6, 0]$ ,  $c \in [15.6, 19.4]$ , and  $d \in [5, 7]$
- C.  $a \in [-1.1, 1.4]$ ,  $b \in [-15, -11]$ ,  $c \in [-3.3, 1.9]$ , and  $d \in [44, 47]$
- D.  $a \in [6, 11.2]$ ,  $b \in [-6, 0]$ ,  $c \in [4.5, 6.3]$ , and  $d \in [5, 7]$
- E. None of the above.
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6. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$-10x^2 - 15x + 3 = 0$$

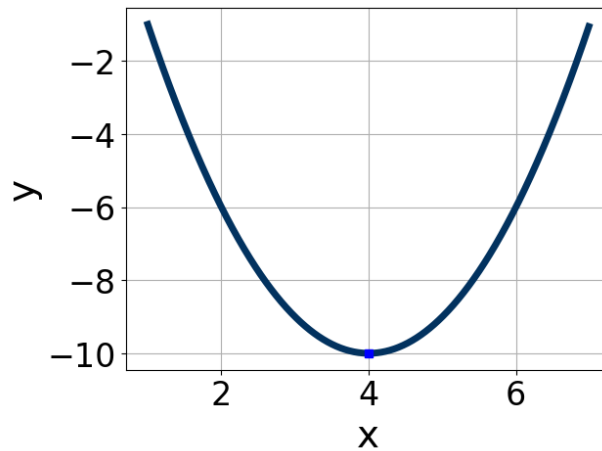
- A.  $x_1 \in [-1.76, -1.44]$  and  $x_2 \in [-0.09, 0.45]$
- B.  $x_1 \in [-0.23, -0.12]$  and  $x_2 \in [1.25, 2.17]$
- C.  $x_1 \in [-1.84, -1.71]$  and  $x_2 \in [16.01, 16.82]$
- D.  $x_1 \in [-19.52, -19.31]$  and  $x_2 \in [17.46, 18.13]$
- E. There are no Real solutions.
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7. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$13x^2 + 12x - 8 = 0$$

- A.  $x_1 \in [-0.52, -0.43]$  and  $x_2 \in [0.8, 2.2]$
- B.  $x_1 \in [-18.45, -17.12]$  and  $x_2 \in [5.3, 6.3]$
- C.  $x_1 \in [-24.23, -23.46]$  and  $x_2 \in [22.7, 23.9]$
- D.  $x_1 \in [-1.64, -1.33]$  and  $x_2 \in [-0.5, 1.2]$
- E. There are no Real solutions.
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8. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a, b$ , and  $c$  belong to.



- A.  $a \in [1, 3]$ ,  $b \in [6, 9]$ , and  $c \in [3, 8]$
- B.  $a \in [1, 3]$ ,  $b \in [-9, -7]$ , and  $c \in [3, 8]$
- C.  $a \in [-4, 0]$ ,  $b \in [-9, -7]$ , and  $c \in [-28, -22]$
- D.  $a \in [1, 3]$ ,  $b \in [6, 9]$ , and  $c \in [24, 30]$
- E.  $a \in [-4, 0]$ ,  $b \in [6, 9]$ , and  $c \in [-28, -22]$

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9. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

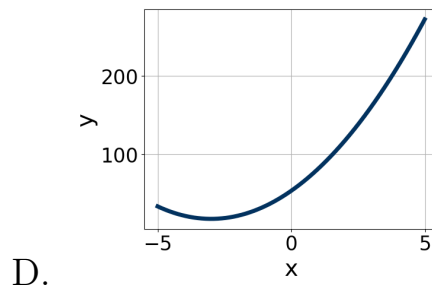
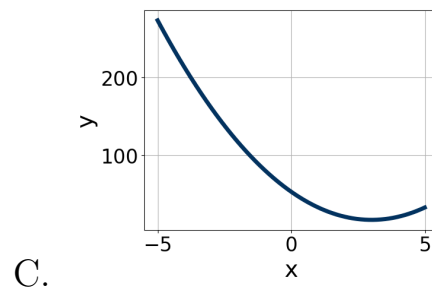
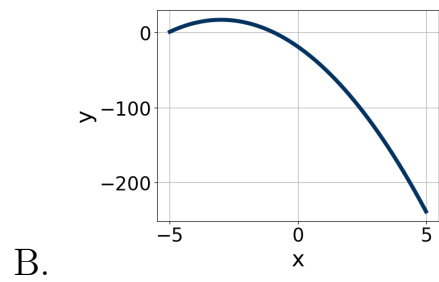
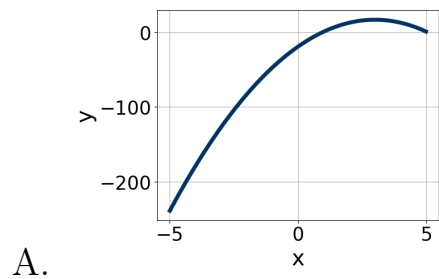
$$15x^2 - 32x + 16 = 0$$

- A.  $x_1 \in [0.2, 0.3]$  and  $x_2 \in [3.77, 4.05]$
- B.  $x_1 \in [11.96, 12.08]$  and  $x_2 \in [19.77, 20.44]$
- C.  $x_1 \in [0.71, 0.83]$  and  $x_2 \in [0.89, 1.57]$
- D.  $x_1 \in [0.33, 0.45]$  and  $x_2 \in [2.52, 2.96]$
- E.  $x_1 \in [0.65, 0.74]$  and  $x_2 \in [1.45, 1.74]$

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10. Graph the equation below.

$$f(x) = (x + 3)^2 + 17$$



E. None of the above.