

1. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$16x^2 - 14x - 7 = 0$$

- A.  $x_1 \in [-0.86, 0.5]$  and  $x_2 \in [1, 2.7]$
  - B.  $x_1 \in [-6.04, -5.23]$  and  $x_2 \in [19.2, 20.8]$
  - C.  $x_1 \in [-25.42, -24.8]$  and  $x_2 \in [25.6, 25.9]$
  - D.  $x_1 \in [-1.32, -0.56]$  and  $x_2 \in [0.2, 0.9]$
  - E. There are no Real solutions.
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2. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$-11x^2 + 10x + 5 = 0$$

- A.  $x_1 \in [-1.47, -0.73]$  and  $x_2 \in [-0.5, 0.7]$
  - B.  $x_1 \in [-14.46, -13.33]$  and  $x_2 \in [3.2, 5.9]$
  - C.  $x_1 \in [-17.7, -16.73]$  and  $x_2 \in [17.2, 18.9]$
  - D.  $x_1 \in [-0.57, -0.28]$  and  $x_2 \in [1.1, 2.5]$
  - E. There are no Real solutions.
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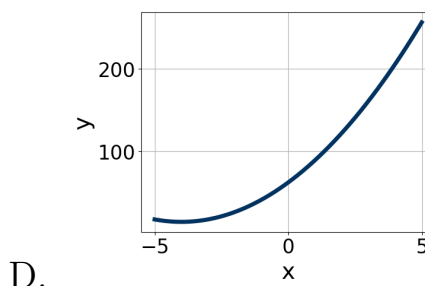
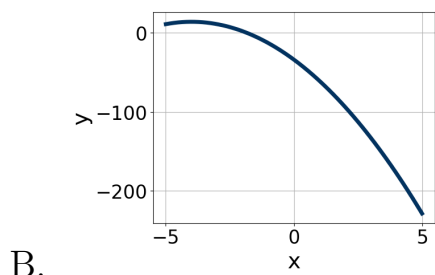
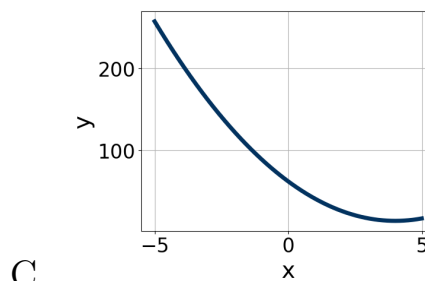
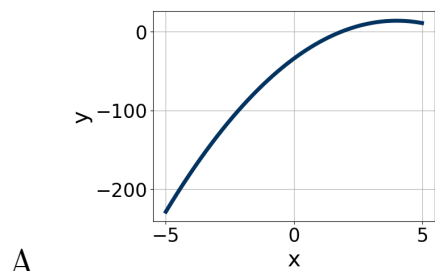
3. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d); b \leq d$ .

$$16x^2 + 32x + 15$$

- A.  $a \in [0.95, 1.81]$ ,  $b \in [7, 14]$ ,  $c \in [-0.68, 1.96]$ , and  $d \in [18, 21]$
- B.  $a \in [7.28, 8.66]$ ,  $b \in [2, 6]$ ,  $c \in [1.84, 2.65]$ , and  $d \in [1, 8]$
- C.  $a \in [3.94, 4.19]$ ,  $b \in [2, 6]$ ,  $c \in [2.76, 5.2]$ , and  $d \in [1, 8]$
- D.  $a \in [1.48, 2.23]$ ,  $b \in [2, 6]$ ,  $c \in [6.84, 9.53]$ , and  $d \in [1, 8]$
- E. None of the above.

4. Graph the equation below.

$$f(x) = (x + 4)^2 + 14$$



E. None of the above.

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

$$36x^2 - 60x + 25$$

A.  $a \in [-3, 2.3]$ ,  $b \in [-30, -25]$ ,  $c \in [0.5, 1.8]$ , and  $d \in [-36, -29]$

B.  $a \in [15.7, 20]$ ,  $b \in [-10, -1]$ ,  $c \in [1.8, 2.1]$ , and  $d \in [-5, -1]$

C.  $a \in [4.5, 7.6]$ ,  $b \in [-10, -1]$ ,  $c \in [3.3, 8.4]$ , and  $d \in [-5, -1]$

D.  $a \in [2.1, 3.2]$ ,  $b \in [-10, -1]$ ,  $c \in [10.9, 13.5]$ , and  $d \in [-5, -1]$

E. None of the above.

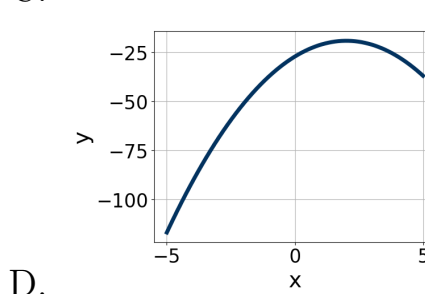
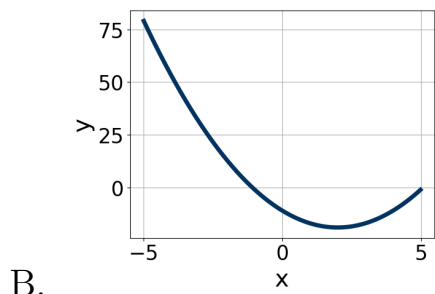
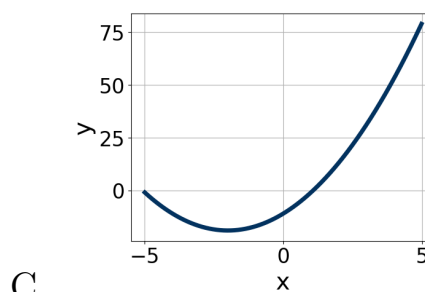
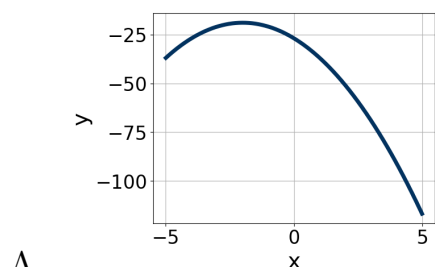
6. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$6x^2 - 19x - 36 = 0$$

- A.  $x_1 \in [-4, -3.66]$  and  $x_2 \in [-3.2, 2.2]$
- B.  $x_1 \in [-0.76, 0.02]$  and  $x_2 \in [12.1, 16.4]$
- C.  $x_1 \in [-8.24, -7.61]$  and  $x_2 \in [23.2, 31.8]$
- D.  $x_1 \in [-1.81, -0.98]$  and  $x_2 \in [4.4, 6.3]$
- E.  $x_1 \in [-2.95, -2.38]$  and  $x_2 \in [1.9, 3.3]$
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7. Graph the equation below.

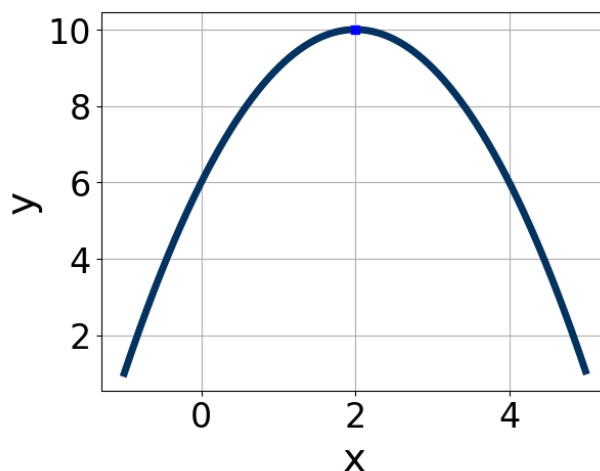
$$f(x) = (x - 2)^2 - 19$$



E. None of the above.

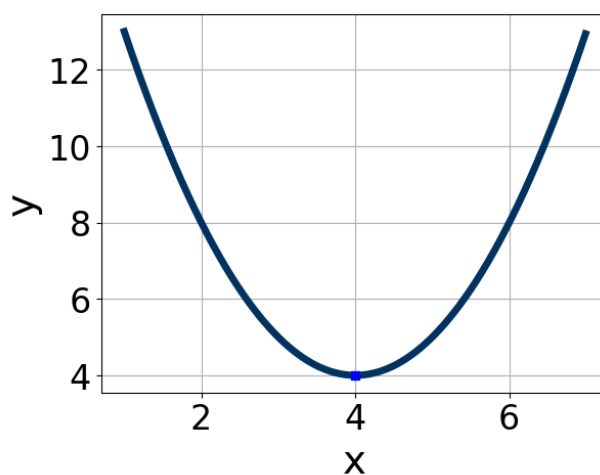
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8. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a$ ,  $b$ , and  $c$  belong to.



- A.  $a \in [-2, 0]$ ,  $b \in [-6, -3]$ , and  $c \in [-14, -11]$   
B.  $a \in [-2, 0]$ ,  $b \in [4, 6]$ , and  $c \in [6, 9]$   
C.  $a \in [0, 3]$ ,  $b \in [4, 6]$ , and  $c \in [13, 15]$   
D.  $a \in [0, 3]$ ,  $b \in [-6, -3]$ , and  $c \in [13, 15]$   
E.  $a \in [-2, 0]$ ,  $b \in [-6, -3]$ , and  $c \in [6, 9]$

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9. 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.  $a \in [-2.2, -0.7]$ ,  $b \in [7, 11]$ , and  $c \in [-12, -11]$   
B.  $a \in [0.3, 2]$ ,  $b \in [-8, -5]$ , and  $c \in [20, 21]$

- C.  $a \in [0.3, 2]$ ,  $b \in [7, 11]$ , and  $c \in [10, 16]$   
D.  $a \in [0.3, 2]$ ,  $b \in [7, 11]$ , and  $c \in [20, 21]$   
E.  $a \in [-2.2, -0.7]$ ,  $b \in [-8, -5]$ , and  $c \in [-12, -11]$
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10. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$25x^2 + 60x + 36 = 0$$

- A.  $x_1 \in [-3.07, -1.95]$  and  $x_2 \in [-0.66, -0.59]$   
B.  $x_1 \in [-3.81, -3.59]$  and  $x_2 \in [-0.54, -0.28]$   
C.  $x_1 \in [-30.07, -29.89]$  and  $x_2 \in [-30.1, -29.94]$   
D.  $x_1 \in [-6.3, -5.34]$  and  $x_2 \in [-0.25, -0.07]$   
E.  $x_1 \in [-1.8, -0.79]$  and  $x_2 \in [-1.3, -1.17]$
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