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

$$24x^2 - 10x - 25$$

A. $a \in [-1, 2], \quad b \in [-5, 0], \quad c \in [16.4, 18.8], \text{ and } \quad d \in [1, 7]$

B. $a \in [8, 9], \quad b \in [-5, 0], \quad c \in [1.5, 3.8], \text{ and } \quad d \in [1, 7]$

C. $a \in [4, 6], \quad b \in [-5, 0], \quad c \in [3.8, 9.9], \text{ and } \quad d \in [1, 7]$

D. $a \in [-1, 2], \quad b \in [-33, -26], \quad c \in [0.7, 2.9], \text{ and } \quad d \in [14, 22]$

E. None of the above.

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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).

$$-16x^2 - 8x + 6 = 0$$

A. $x_1 \in [-7.6, -6.4]$ and $x_2 \in [14.29, 15]$

B. $x_1 \in [-0.6, 0]$ and $x_2 \in [0.52, 1.93]$

C. $x_1 \in [-23.3, -20.3]$ and $x_2 \in [20.09, 21.84]$

D. $x_1 \in [-1.1, -0.5]$ and $x_2 \in [-0.08, 0.72]$

E. There are no Real solutions.

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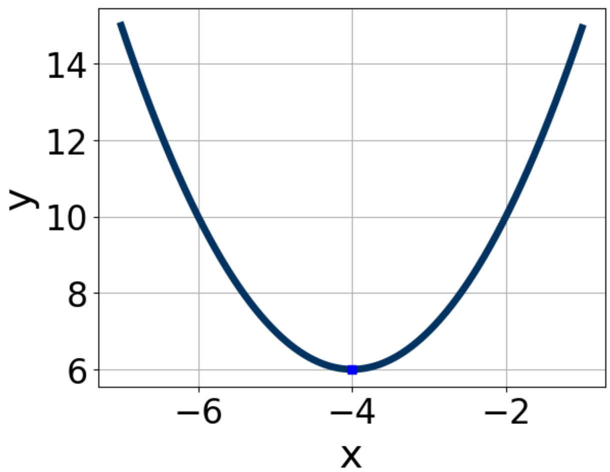
3. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [0, 4], \quad b \in [7, 11], \text{ and } \quad c \in [19, 29]$

B. $a \in [-1, 0], \quad b \in [7, 11], \text{ and } \quad c \in [-10, -9]$

C. $a \in [-1, 0], \quad b \in [-9, -5], \text{ and } \quad c \in [-10, -9]$

D. $a \in [0, 4], \quad b \in [-9, -5], \text{ and } \quad c \in [9, 12]$

E. $a \in [0, 4], \quad b \in [-9, -5], \text{ and } \quad c \in [19, 29]$

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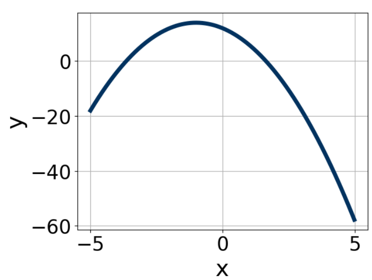
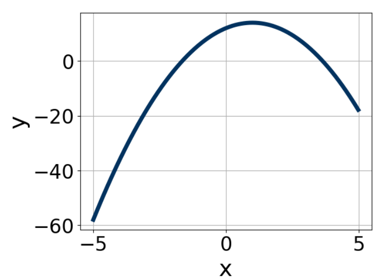
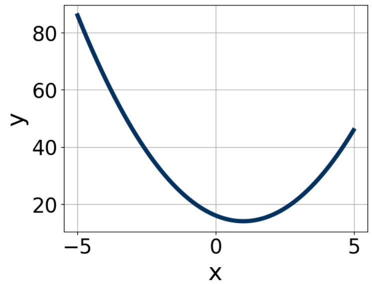
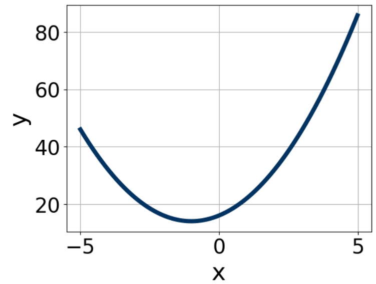
4. Graph the equation below.

$$f(x) = -(x + 1)^2 + 14$$


A.


C.


B.


D.

E. None of the above.

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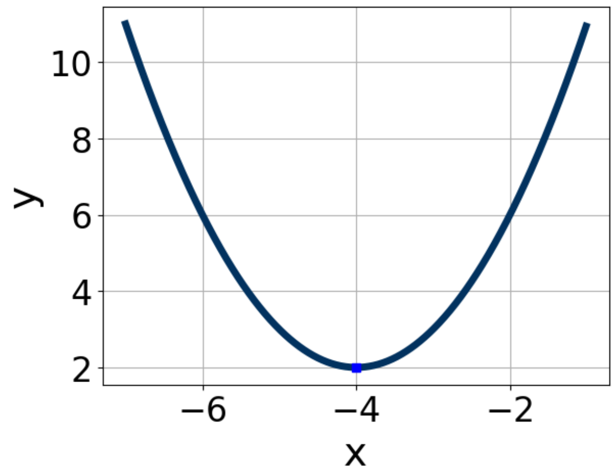
5. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [0.4, 2.4], \quad b \in [6, 10], \text{ and } \quad c \in [16, 21]$

B. $a \in [-2.1, -0.2], \quad b \in [-8, -2], \text{ and } \quad c \in [-15, -13]$

C. $a \in [0.4, 2.4], \quad b \in [-8, -2], \text{ and } \quad c \in [10, 16]$

D. $a \in [0.4, 2.4], \quad b \in [-8, -2], \text{ and } \quad c \in [16, 21]$

E. $a \in [-2.1, -0.2], \quad b \in [6, 10], \text{ and } \quad c \in [-15, -13]$

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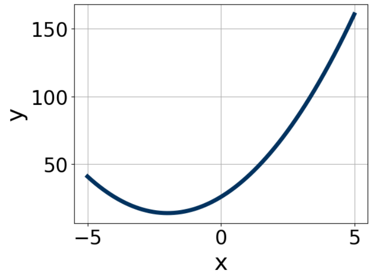
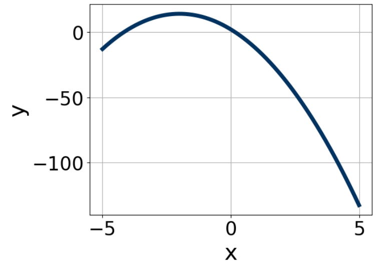
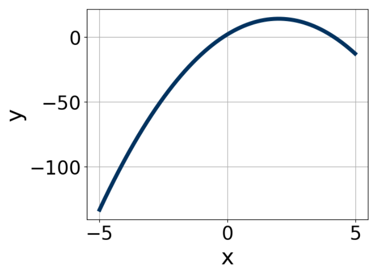
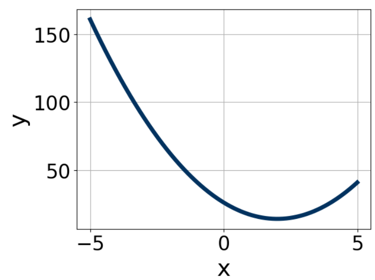
6. Graph the equation below.

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

A. 

B. 

C. 

D. 

E. None of the above.

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7. 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. $a \in [3.64, 4.23], \quad b \in [-9, -3], \quad c \in [2.57, 4.27],$ and $\quad d \in [-6, 2]$

B. $a \in [-0.01, 1.45], \quad b \in [-25, -18], \quad c \in [-0.12, 1.03],$ and $\quad d \in [-12, -8]$

C. $a \in [1.5, 3.59], \quad b \in [-9, -3], \quad c \in [7.18, 8.42],$ and $\quad d \in [-6, 2]$

D. $a \in [7.55, 8.16], \quad b \in [-9, -3], \quad c \in [1.96, 2.26],$ and $\quad d \in [-6, 2]$

E. None of the above.

---

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

$$10x^2 - 33x - 54 = 0$$

A. $x_1 \in [-1.3, -1.1]$ and $x_2 \in [3.97, 5.26]$

B. $x_1 \in [-9.8, -4.1]$ and $x_2 \in [0.86, 1.41]$

C. $x_1 \in [-12.3, -11.7]$ and $x_2 \in [44.45, 45.17]$

D. $x_1 \in [-4.7, -1.3]$ and $x_2 \in [1.16, 2.62]$

E. $x_1 \in [-0.8, 0.9]$ and $x_2 \in [13.03, 14.14]$

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

$$13x^2 - 14x - 4 = 0$$

A. $x_1 \in [-1.7, -0.4]$ and $x_2 \in [0.1, 1.2]$

B. $x_1 \in [-20.3, -19]$ and $x_2 \in [19.4, 22.9]$

C. $x_1 \in [-4.7, -2.2]$ and $x_2 \in [16.9, 19.7]$

D. $x_1 \in [-1.1, 0.8]$ and $x_2 \in [1.2, 1.9]$

E. There are no Real solutions.

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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 $x_1 \leq x_2$.

$$10x^2 + 33x - 54 = 0$$

A. $x_1 \in [-9.1, -6.7]$ and $x_2 \in [0.41, 1.11]$

B. $x_1 \in [-4.2, -1.2]$ and $x_2 \in [2.22, 2.72]$

C. $x_1 \in [-6.4, -3]$ and $x_2 \in [0.74, 1.25]$

D. $x_1 \in [-45.2, -44.5]$ and $x_2 \in [11.86, 12.02]$

E. $x_1 \in [-14.1, -11.7]$ and $x_2 \in [0.22, 0.47]$
