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

$$24x^2 + 2x - 15$$

A. $a \in [7.8, 8.8], \quad b \in [-4, -1], \quad c \in [2.5, 3.7], \text{ and } \quad d \in [2, 7]$

B. $a \in [3.28, 4.33], \quad b \in [-4, -1], \quad c \in [5.8, 7.9], \text{ and } \quad d \in [2, 7]$

C. $a \in [1.55, 2.02], \quad b \in [-4, -1], \quad c \in [10.1, 14.4], \text{ and } \quad d \in [2, 7]$

D. $a \in [0.05, 1.4], \quad b \in [-18, -15], \quad c \in [-2.2, 2], \text{ and } \quad d \in [14, 23]$

E. None of the above.

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2. 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. $a \in [8.3, 9.4], \quad b \in [-8, 1], \quad c \in [5.6, 6.32], \text{ and } \quad d \in [2, 11]$

B. $a \in [3.1, 7.1], \quad b \in [-8, 1], \quad c \in [10.96, 12.37], \text{ and } \quad d \in [2, 11]$

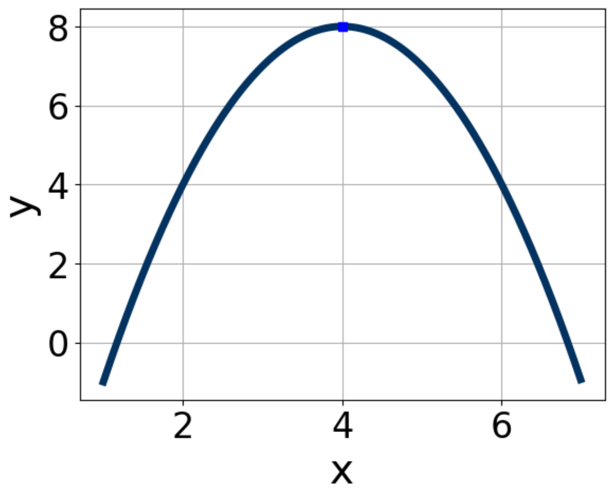
C. $a \in [25.8, 27.9], \quad b \in [-8, 1], \quad c \in [1.57, 3.31], \text{ and } \quad d \in [2, 11]$

D. $a \in [0.1, 2.4], \quad b \in [-31, -27], \quad c \in [-0.38, 1.21], \text{ and } \quad d \in [40, 48]$

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. $a \in [-3.1, 0], \quad b \in [6, 10], \text{ and } \quad c \in [-11, -5]$

B. $a \in [-3.1, 0], \quad b \in [-12, -7], \text{ and } \quad c \in [-25, -21]$

C. $a \in [-3.1, 0], \quad b \in [-12, -7], \text{ and } \quad c \in [-11, -5]$

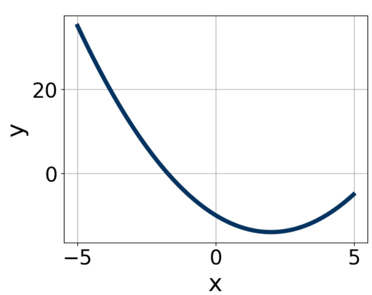
D. $a \in [0.2, 1.9], \quad b \in [-12, -7], \text{ and } \quad c \in [24, 26]$

E. $a \in [0.2, 1.9], \quad b \in [6, 10], \text{ and } \quad c \in [24, 26]$

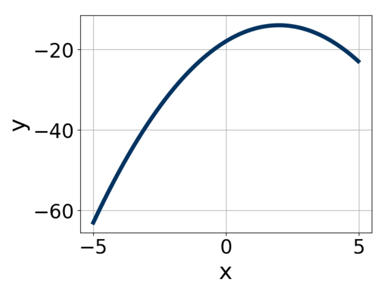
---

4. Graph the equation below.

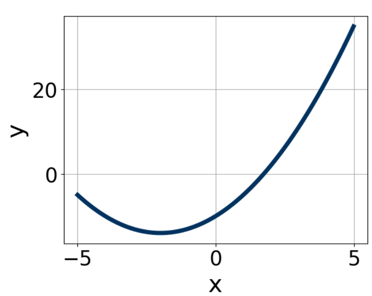
$$f(x) = -(x-2)^2 - 14$$



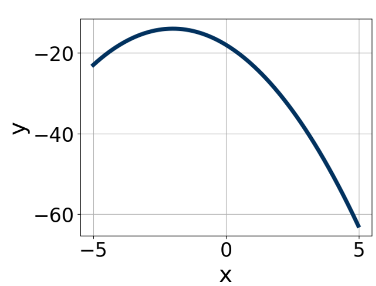
A.



C.



B.



D.

E. None of the above.

---

5. 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. $x_1 \in [-20.3, -19.79]$ and $x_2 \in [-12.02, -11.84]$

B. $x_1 \in [-1.46, -1.31]$ and $x_2 \in [-0.82, -0.68]$

C. $x_1 \in [-4.24, -3.96]$ and $x_2 \in [-0.38, -0.21]$

D. $x_1 \in [-2.83, -2.56]$ and $x_2 \in [-0.49, -0.34]$

E. $x_1 \in [-1.76, -1.55]$ and $x_2 \in [-0.78, -0.58]$

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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).

$$12x^2 - 15x - 4 = 0$$

A. $x_1 \in [-19.98, -19.5]$ and $x_2 \in [19.5, 22.9]$

B. $x_1 \in [-3.11, -2.33]$ and $x_2 \in [16, 19.1]$

C. $x_1 \in [-0.35, 0.03]$ and $x_2 \in [0.4, 1.8]$

D. $x_1 \in [-1.73, -1.37]$ and $x_2 \in [-1.4, 1.4]$

E. There are no Real solutions.

---

7. 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. $x_1 \in [-4.45, -3.23]$ and $x_2 \in [-0.52, -0.39]$

B. $x_1 \in [-6.7, -5.59]$ and $x_2 \in [-0.25, -0.08]$

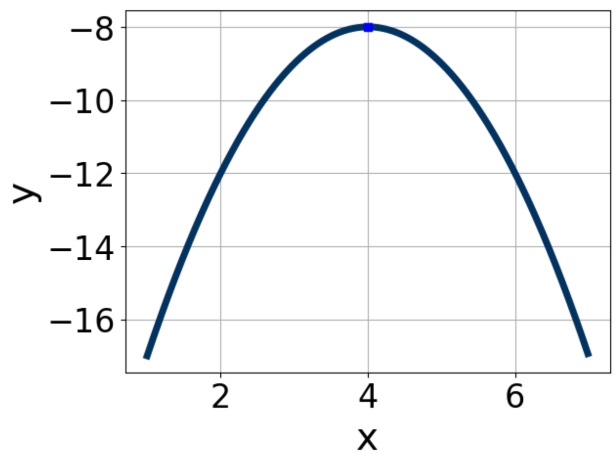
C. $x_1 \in [-2.41, -1.99]$ and $x_2 \in [-0.76, -0.44]$

D. $x_1 \in [-1.24, 0.72]$ and $x_2 \in [-1.53, -0.9]$

E. $x_1 \in [-31.53, -29.59]$ and $x_2 \in [-30, -29.99]$

---

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. $a \in [0.7, 1.1], \quad b \in [7, 9], \text{ and } \quad c \in [8, 13]$

B. $a \in [-2.7, 0.8], \quad b \in [7, 9], \text{ and } \quad c \in [-28, -19]$

C. $a \in [-2.7, 0.8], \quad b \in [-12, -7], \text{ and } \quad c \in [-12, -5]$

D. $a \in [0.7, 1.1], \quad b \in [-12, -7], \text{ and } \quad c \in [8, 13]$

E. $a \in [-2.7, 0.8], \quad b \in [-12, -7], \text{ and } \quad c \in [-28, -19]$

---

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

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

A. $x_1 \in [-12.99, -12.6]$ and $x_2 \in [11.7, 14.3]$

B. $x_1 \in [-2.85, -2.45]$ and $x_2 \in [9.7, 11.8]$

C. $x_1 \in [-0.78, 0.4]$ and $x_2 \in [0.2, 2]$

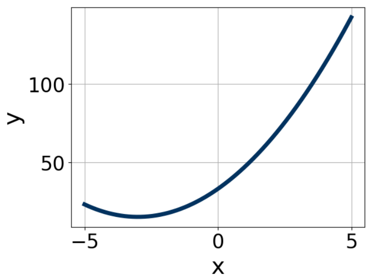
D. $x_1 \in [-1.17, -0.43]$ and $x_2 \in [-0.4, 0.5]$

E. There are no Real solutions.

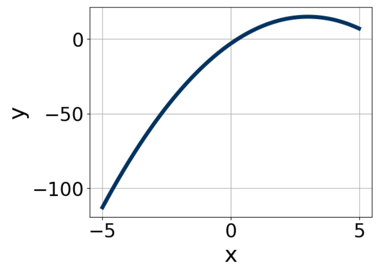
---

10. Graph the equation below.

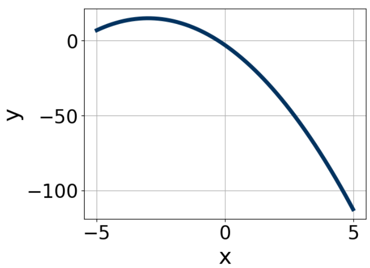
$$f(x) = -(x+3)^2 + 15$$



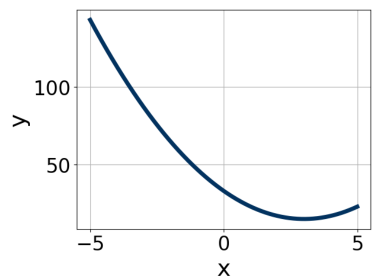
A.



C.



B.



D.

E. None of the above.
