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

$$20x^2 - 21x - 54 = 0$$

A. $x_1 \in [-24.38, -23.93]$ and $x_2 \in [44.99, 45.07]$

B. $x_1 \in [-3.92, -3.51]$ and $x_2 \in [0.67, 1.05]$

C. $x_1 \in [-1.49, -1.15]$ and $x_2 \in [1.92, 2.37]$

D. $x_1 \in [-0.85, -0.48]$ and $x_2 \in [4.5, 4.69]$

E. $x_1 \in [-6.1, -5.54]$ and $x_2 \in [0.44, 0.53]$

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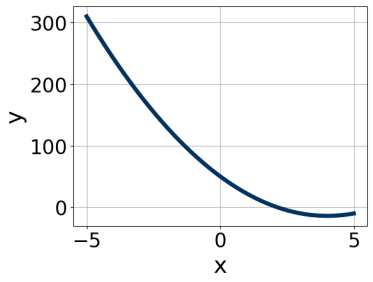
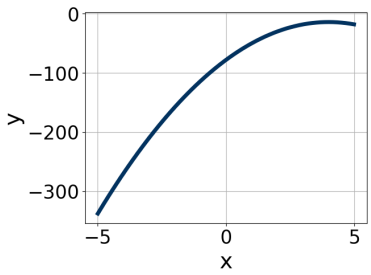
2. Graph the equation below.

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

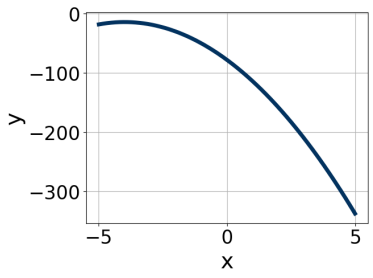
A.



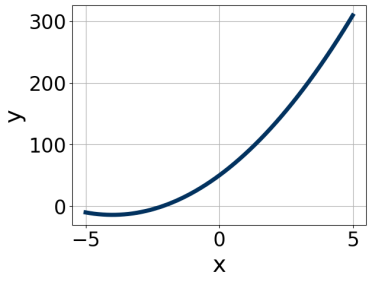
C.



B.



D.



E. None of the above.

---

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

$$18x^2 + 10x - 4 = 0$$

A. $x_1 \in [-1.14, -0.42]$ and $x_2 \in [0.05, 0.39]$

B. $x_1 \in [-0.72, -0.25]$ and $x_2 \in [0.79, 0.84]$

C. $x_1 \in [-15.15, -14.07]$ and $x_2 \in [4.65, 5.14]$

D. $x_1 \in [-20.94, -19.56]$ and $x_2 \in [19.41, 19.79]$

E. There are no Real solutions.

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

$$15x^2 + 38x + 24 = 0$$

A. $x_1 \in [-2.88, -1.86]$ and $x_2 \in [-0.76, -0.52]$

B. $x_1 \in [-4.98, -3.33]$ and $x_2 \in [-0.43, -0.35]$

C. $x_1 \in [-1.53, -0.12]$ and $x_2 \in [-1.29, -0.76]$

D. $x_1 \in [-6.46, -5.63]$ and $x_2 \in [-0.31, -0.2]$

E. $x_1 \in [-20.18, -17.57]$ and $x_2 \in [-18.02, -17.78]$

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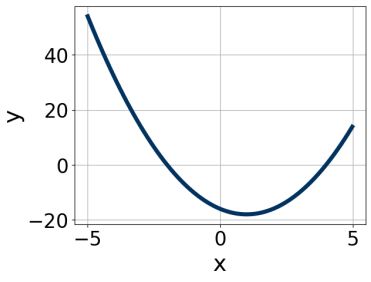
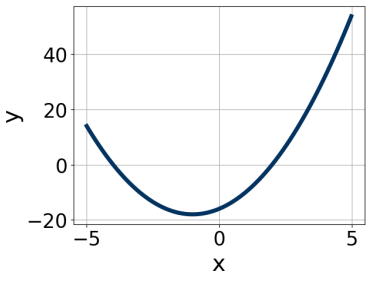
5. Graph the equation below.

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

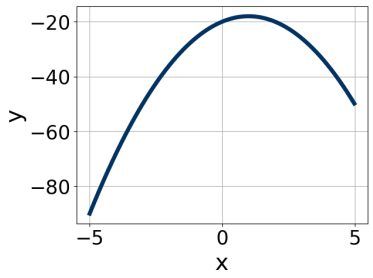
A.



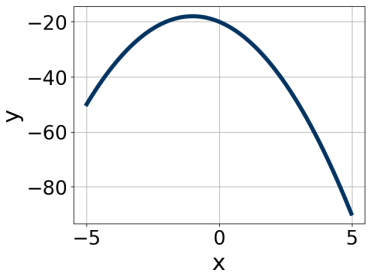
B.



C.



D.



E. None of the above.

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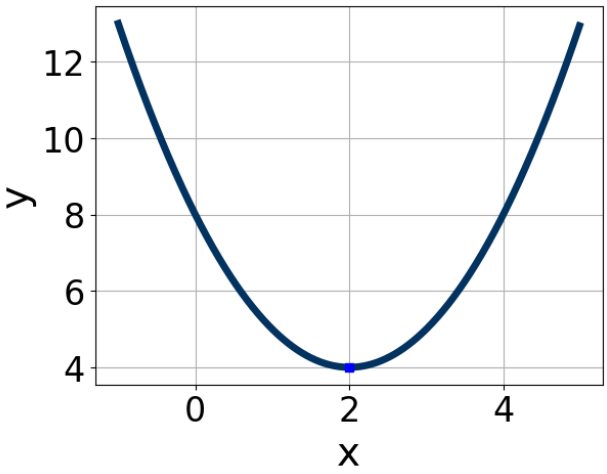
6. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-1.7, -0.2]$, $b \in [-5, -3]$, and $c \in [-2, 1]$

B. $a \in [-1.7, -0.2]$, $b \in [4, 7]$, and $c \in [-2, 1]$

C. $a \in [0, 1.3]$, $b \in [4, 7]$, and $c \in [-2, 1]$

D. $a \in [0, 1.3]$, $b \in [4, 7]$, and $c \in [8, 9]$

E. $a \in [0, 1.3]$, $b \in [-5, -3]$, and $c \in [8, 9]$

---

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

$$54x^2 - 21x - 20$$

A. $a \in [16.1, 18.8]$, $b \in [-10, -2]$, $c \in [2.93, 3.34]$, and $d \in [4, 8]$

B. $a \in [-1.3, 1.9]$, $b \in [-49, -40]$, $c \in [0.97, 1.2]$, and $d \in [23, 28]$

C. $a \in [2.8, 4.9]$, $b \in [-10, -2]$, $c \in [17.42, 18.95]$, and $d \in [4, 8]$

D. $a \in [5.9, 8.6]$, $b \in [-10, -2]$, $c \in [8.18, 9.23]$, and $d \in [4, 8]$

E. None of the above.

---

8. 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. $a \in [5.31, 7.07]$, $b \in [3, 9]$, $c \in [4, 6.4]$, and $d \in [5, 7]$

B. $a \in [1.13, 2.08]$, $b \in [3, 9]$, $c \in [14.7, 18.3]$, and $d \in [5, 7]$

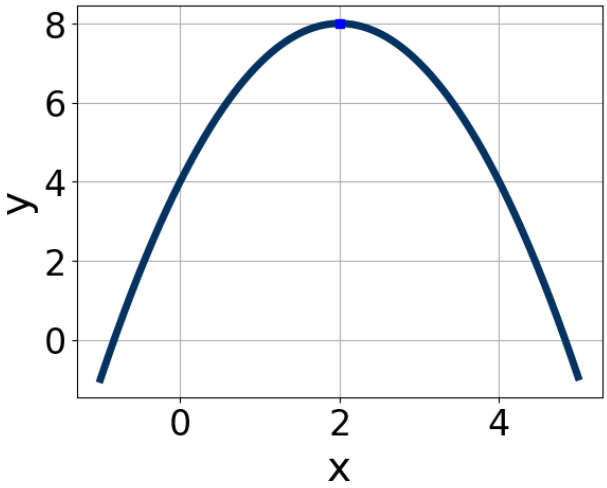
C. $a \in [11.66, 12.88]$, $b \in [3, 9]$, $c \in [1.3, 5.6]$, and $d \in [5, 7]$

D. $a \in [0.66, 1.73]$, $b \in [28, 32]$, $c \in [0.3, 2.6]$, and $d \in [30, 37]$

E. None of the above.

---

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. $a \in [-1.2, -0.2]$, $b \in [-5, -3]$, and $c \in [-13, -8]$

B. $a \in [-1.2, -0.2]$, $b \in [3, 6]$, and $c \in [0, 7]$

C. $a \in [-1.2, -0.2]$, $b \in [-5, -3]$, and $c \in [0, 7]$

D. $a \in [-0.4, 1.3]$, $b \in [3, 6]$, and $c \in [11, 14]$

E. $a \in [-0.4, 1.3]$, $b \in [-5, -3]$, and $c \in [11, 14]$

---

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

$$20x^2 - 14x - 5 = 0$$

A. $x_1 \in [-5.36, -5.07]$ and $x_2 \in [19.01, 19.78]$

B. $x_1 \in [-1.02, -0.57]$ and $x_2 \in [-0.11, 0.29]$

C. $x_1 \in [-0.58, -0.24]$ and $x_2 \in [0.69, 1.56]$

D. $x_1 \in [-24.99, -23.83]$ and $x_2 \in [24.66, 25.37]$

E. There are no Real solutions.
