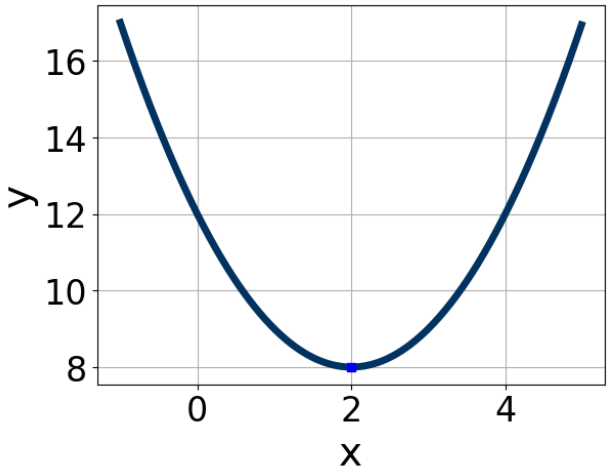
1. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-0.2, 1.1]$, $b \in [-4, -2]$, and $c \in [12, 14]$

B. $a \in [-0.2, 1.1]$, $b \in [4, 7]$, and $c \in [12, 14]$

C. $a \in [-1.5, -0.1]$, $b \in [4, 7]$, and $c \in [2, 10]$

D. $a \in [-0.2, 1.1]$, $b \in [4, 7]$, and $c \in [-6, -1]$

E. $a \in [-1.5, -0.1]$, $b \in [-4, -2]$, and $c \in [2, 10]$

---

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

$$54x^2 - 57x + 10$$

A. $a \in [8.9, 12.9]$, $b \in [-10, -1]$, $c \in [2.5, 4.4]$, and $d \in [-6, 3]$

B. $a \in [4.3, 8.7]$, $b \in [-10, -1]$, $c \in [6.3, 10.6]$, and $d \in [-6, 3]$

C. $a \in [0.5, 1.4]$, $b \in [-50, -43]$, $c \in [-0.2, 1.8]$, and $d \in [-22, -7]$

D. $a \in [1.9, 4.1]$, $b \in [-10, -1]$, $c \in [25.7, 28.6]$, and $d \in [-6, 3]$

E. None of the above.

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

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

A. $a \in [7.9, 9.1]$, $b \in [-5, -3]$, $c \in [5.8, 6.4]$, and $d \in [-1, 7]$

B. $a \in [25.9, 29.9]$, $b \in [-5, -3]$, $c \in [1.4, 2.8]$, and $d \in [-1, 7]$

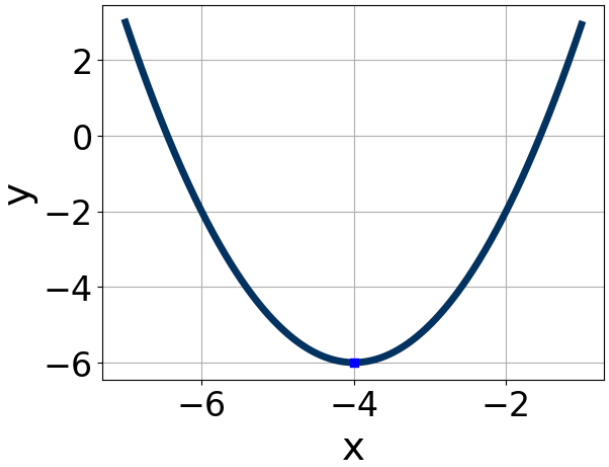
C. $a \in [2.7, 3.2]$, $b \in [-5, -3]$, $c \in [16.5, 19.6]$, and $d \in [-1, 7]$

D. $a \in [-1.1, 1.9]$, $b \in [-32, -21]$, $c \in [-0.5, 1.8]$, and $d \in [42, 52]$

E. None of the above.

---

4. 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. $a \in [0, 3]$, $b \in [6, 10]$, and $c \in [8, 12]$

B. $a \in [-5, 0]$, $b \in [-8, -4]$, and $c \in [-22, -19]$

C. $a \in [0, 3]$, $b \in [-8, -4]$, and $c \in [8, 12]$

D. $a \in [0, 3]$, $b \in [-8, -4]$, and $c \in [18, 24]$

E. $a \in [-5, 0]$, $b \in [6, 10]$, and $c \in [-22, -19]$

---

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

$$15x^2 + 47x + 36 = 0$$

A. $x_1 \in [-2.11, -1.41]$ and $x_2 \in [-1.54, -1.24]$

B. $x_1 \in [-9.46, -8.66]$ and $x_2 \in [-0.35, 0.13]$

C. $x_1 \in [-27.2, -26.83]$ and $x_2 \in [-20.25, -19.75]$

D. $x_1 \in [-3, -2.37]$ and $x_2 \in [-1.28, -0.8]$

E. $x_1 \in [-5.75, -5.33]$ and $x_2 \in [-0.71, -0.27]$

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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).

$$-11x^2 - 11x + 7 = 0$$

A. $x_1 \in [-1.4, 0.7]$ and $x_2 \in [0.9, 3.4]$

B. $x_1 \in [-5, -4.2]$ and $x_2 \in [15.4, 17]$

C. $x_1 \in [-2.8, -1.1]$ and $x_2 \in [-1.4, 0.7]$

D. $x_1 \in [-22, -21.1]$ and $x_2 \in [20.1, 21.8]$

E. There are no Real solutions.

---

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

$$18x^2 + 13x - 4 = 0$$

A. $x_1 \in [-2.9, -0.5]$ and $x_2 \in [-0.43, 0.58]$

B. $x_1 \in [-23.6, -19.8]$ and $x_2 \in [20.64, 21.64]$

C. $x_1 \in [-17.7, -16.2]$ and $x_2 \in [3.45, 4.66]$

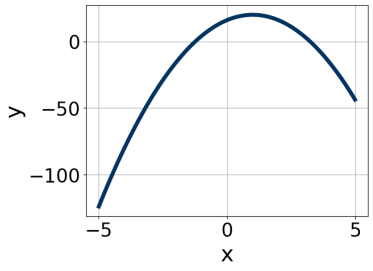
D. $x_1 \in [-0.7, 0]$ and $x_2 \in [0.74, 1.41]$

E. There are no Real solutions.

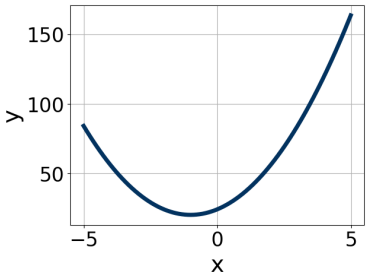
8. Graph the equation below.

$$f(x) = (x-1)^2 + 20$$

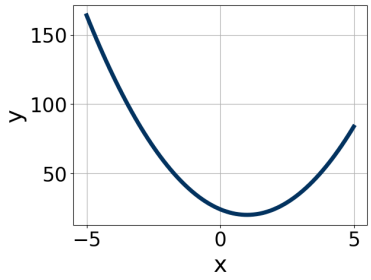
A.



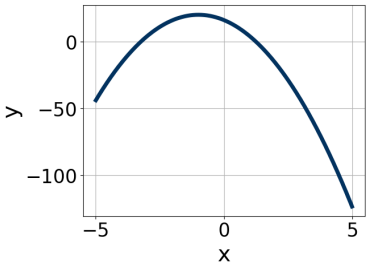
C.



B.



D.

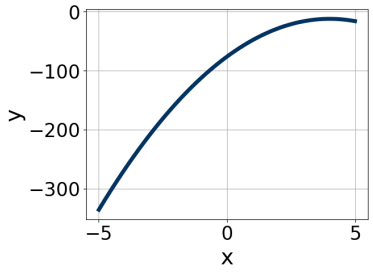


E. None of the above.

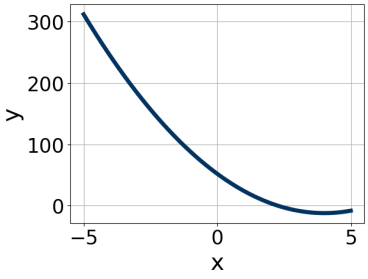
9. Graph the equation below.

$$f(x) = (x+4)^2 - 12$$

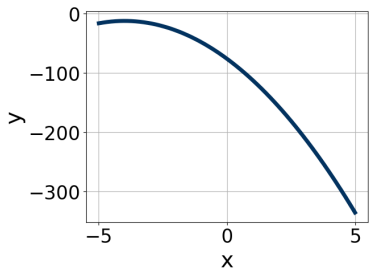
A.



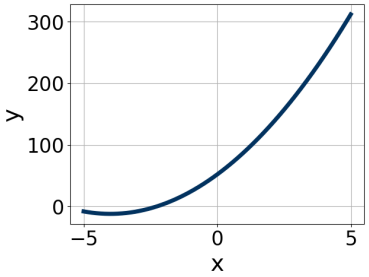
C.



B.



D.



E. None of the above.

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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 $x_1 \leq x_2$.

$$20x^2 + 69x + 54 = 0$$

A. $x_1 \in [-2.32, -2.22]$ and $x_2 \in [-1.24, -1.19]$

B. $x_1 \in [-6.77, -6.73]$ and $x_2 \in [-0.42, -0.35]$

C. $x_1 \in [-2.48, -2.3]$ and $x_2 \in [-1.14, -0.99]$

D. $x_1 \in [-9.1, -8.8]$ and $x_2 \in [-0.37, -0.24]$

E. $x_1 \in [-45.09, -44.99]$ and $x_2 \in [-24.03, -23.92]$
