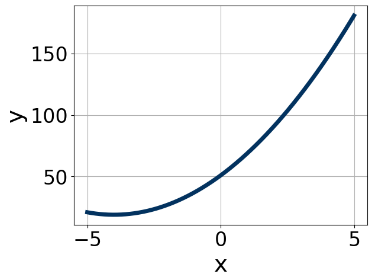
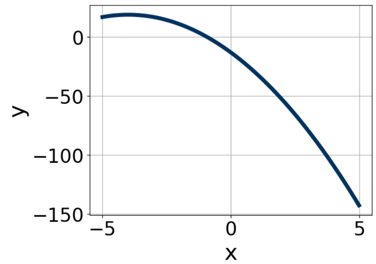
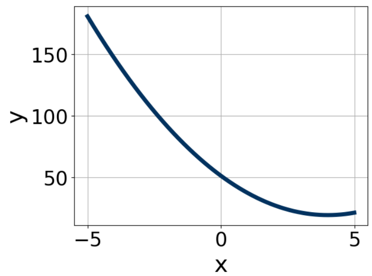
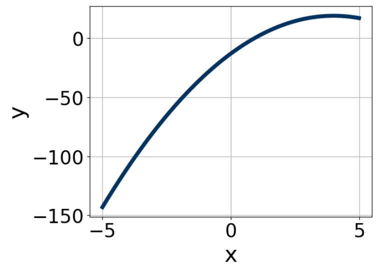
1. Graph the equation below.

$$f(x) = -(x+4)^2 + 19$$

A. 

C. 

B. 

D. 

E. None of the above.

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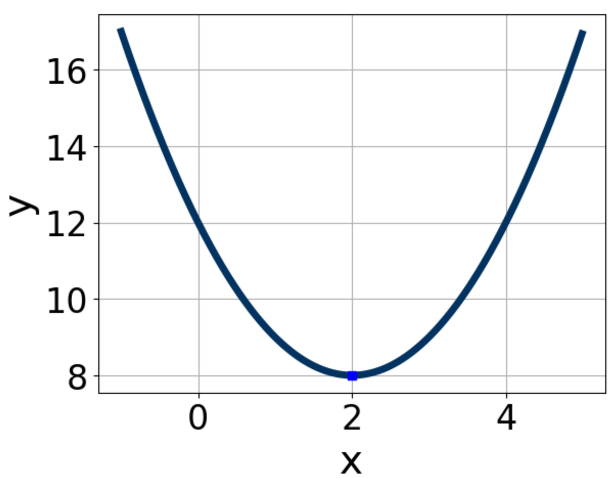
2. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [0.4, 1.4], \quad b \in [3, 7], \text{ and } \quad c \in [-4, 0]$

B. $a \in [0.4, 1.4], \quad b \in [-4, -3], \text{ and } \quad c \in [10, 15]$

C. $a \in [-2.4, -0.5], \quad b \in [3, 7], \text{ and } \quad c \in [3, 5]$

D. $a \in [-2.4, -0.5], \quad b \in [-4, -3], \text{ and } \quad c \in [3, 5]$

E. $a \in [0.4, 1.4], \quad b \in [3, 7], \text{ and } \quad c \in [10, 15]$

---

3. 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. $x_1 \in [0.53, 0.65]$ and $x_2 \in [2.38, 3.12]$

B. $x_1 \in [1.17, 1.24]$ and $x_2 \in [0.83, 1.86]$

C. $x_1 \in [0.41, 0.47]$ and $x_2 \in [3.51, 3.96]$

D. $x_1 \in [17.97, 18]$ and $x_2 \in [19.68, 20.6]$

E. $x_1 \in [0.39, 0.42]$ and $x_2 \in [3.76, 4.43]$

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

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

A. $x_1 \in [-17.82, -16.82]$ and $x_2 \in [18.44, 18.62]$

B. $x_1 \in [-2, -1.36]$ and $x_2 \in [0, 0.19]$

C. $x_1 \in [-16.64, -16.01]$ and $x_2 \in [1.39, 1.46]$

D. $x_1 \in [-0.74, 0.04]$ and $x_2 \in [1.27, 1.39]$

E. There are no Real solutions.

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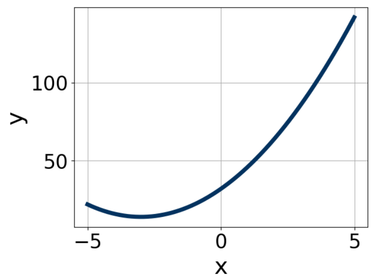
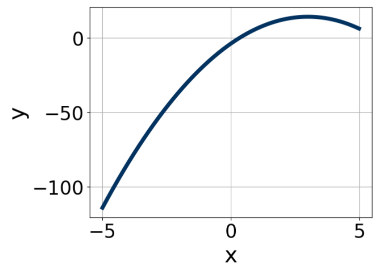
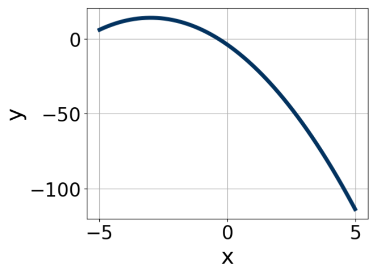
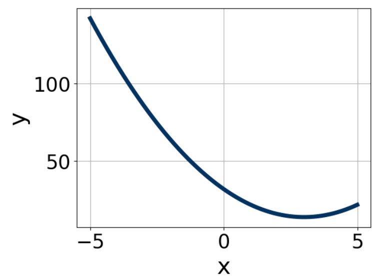
5. Graph the equation below.

$$f(x) = (x + 3)^2 + 14$$

A. 

C. 

B. 

D. 

E. None of the above.

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6. 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. $a \in [0.3, 1.9], \quad b \in [-46, -39], \quad c \in [0, 2], \text{ and } \quad d \in [23, 27]$

B. $a \in [17.5, 20.3], \quad b \in [-5, -1], \quad c \in [2, 5], \text{ and } \quad d \in [-1, 5]$

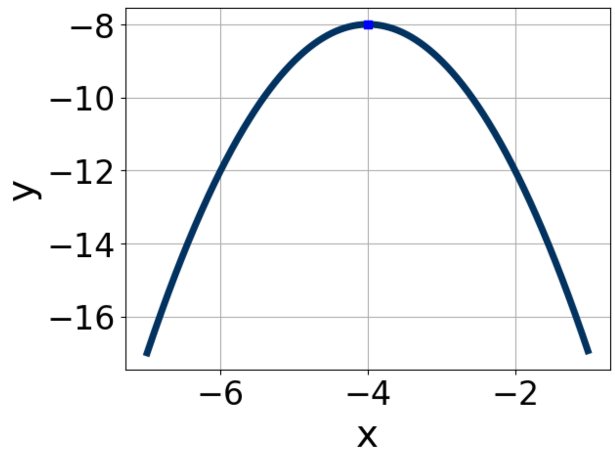
C. $a \in [4.3, 7.8], \quad b \in [-5, -1], \quad c \in [9, 13], \text{ and } \quad d \in [-1, 5]$

D. $a \in [1.9, 5.2], \quad b \in [-5, -1], \quad c \in [26, 30], \text{ and } \quad d \in [-1, 5]$

E. None of the above.

---

7. 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. $a \in [-0.4, 1.6], \quad b \in [6, 11], \text{ and } \quad c \in [8, 9]$

B. $a \in [-0.4, 1.6], \quad b \in [-11, -7], \text{ and } \quad c \in [8, 9]$

C. $a \in [-1.4, -0.2], \quad b \in [6, 11], \text{ and } \quad c \in [-9, -5]$

D. $a \in [-1.4, -0.2], \quad b \in [-11, -7], \text{ and } \quad c \in [-24, -22]$

E. $a \in [-1.4, -0.2], \quad b \in [6, 11], \text{ and } \quad c \in [-24, -22]$

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8. 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. $a \in [1.76, 2.33], \quad b \in [-8, -4], \quad c \in [25.2, 30.1], \text{ and } \quad d \in [-7, 0]$

B. $a \in [5.32, 6.83], \quad b \in [-8, -4], \quad c \in [6.1, 12.9], \text{ and } \quad d \in [-7, 0]$

C. $a \in [0.95, 1.95], \quad b \in [-46, -41], \quad c \in [-1, 2.2], \text{ and } \quad d \in [-17, -9]$

D. $a \in [17.37, 18.54], \quad b \in [-8, -4], \quad c \in [1.9, 6.4], \text{ and } \quad d \in [-7, 0]$

E. None of the above.

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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).

$$16x^2 - 12x - 7 = 0$$

A. $x_1 \in [-7.4, -4.7]$ and $x_2 \in [17.54, 18.33]$

B. $x_1 \in [-3, -0.7]$ and $x_2 \in [0.25, 0.78]$

C. $x_1 \in [-24.3, -23.3]$ and $x_2 \in [24.64, 25.09]$

D. $x_1 \in [-0.8, 0.6]$ and $x_2 \in [0.98, 1.38]$

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 $x_1 \leq x_2$.

$$15x^2 - 8x - 16 = 0$$

A. $x_1 \in [-2.89, -1.54]$ and $x_2 \in [0.51, 0.68]$

B. $x_1 \in [-4.62, -2.99]$ and $x_2 \in [0.05, 0.36]$

C. $x_1 \in [-1.26, -0.74]$ and $x_2 \in [1.03, 1.62]$

D. $x_1 \in [-13.02, -10.78]$ and $x_2 \in [19.62, 20.68]$

E. $x_1 \in [-0.69, 1.18]$ and $x_2 \in [2.37, 2.9]$
