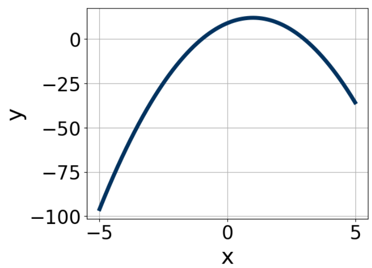
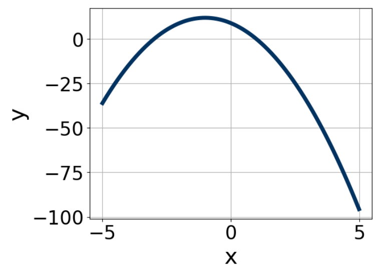
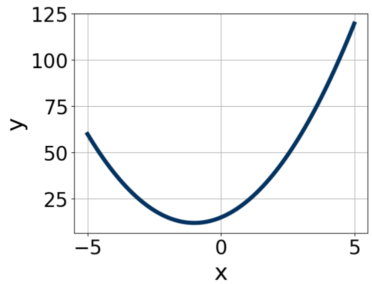
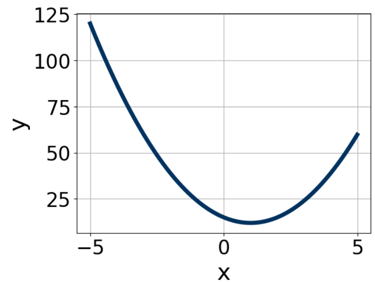
1. Graph the equation below.

$$f(x) = -(x-1)^2 + 12$$

A. 

C. 

B. 

D. 

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 $(ax+b)(cx+d); b \leq d$.

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

A. $a \in [1.45, 3.08], \quad b \in [-13, 2], \quad c \in [7.34, 8.03], \text{ and } \quad d \in [2, 7]$

B. $a \in [7.54, 8.63], \quad b \in [-13, 2], \quad c \in [1.34, 2.96], \text{ and } \quad d \in [2, 7]$

C. $a \in [3.05, 5.42], \quad b \in [-13, 2], \quad c \in [3.24, 5.71], \text{ and } \quad d \in [2, 7]$

D. $a \in [-0.4, 1.13], \quad b \in [-21, -17], \quad c \in [0.39, 1.71], \text{ and } \quad d \in [12, 13]$

E. None of the above.

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

$$20x^2 - 12x - 4 = 0$$

A. $x_1 \in [-5.45, -4.16]$ and $x_2 \in [15.6, 17.37]$

B. $x_1 \in [-0.35, -0.2]$ and $x_2 \in [0.46, 1.49]$

C. $x_1 \in [-21.47, -20.53]$ and $x_2 \in [21.59, 22.51]$

D. $x_1 \in [-0.96, -0.42]$ and $x_2 \in [-0.12, 0.64]$

E. There are no Real solutions.

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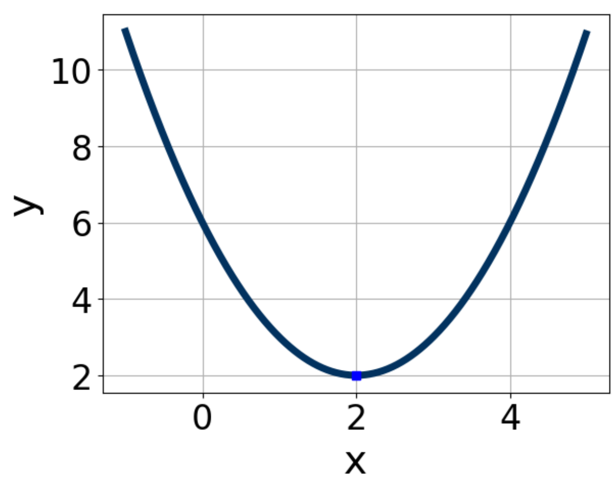
4. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [0, 7], \quad b \in [3, 7], \text{ and } \quad c \in [5, 8]$

B. $a \in [0, 7], \quad b \in [-5, -3], \text{ and } \quad c \in [5, 8]$

C. $a \in [-2, 0], \quad b \in [3, 7], \text{ and } \quad c \in [-4, 1]$

D. $a \in [0, 7], \quad b \in [3, 7], \text{ and } \quad c \in [2, 5]$

E. $a \in [-2, 0], \quad b \in [-5, -3], \text{ and } \quad c \in [-4, 1]$

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

$$10x^2 - 8x - 5 = 0$$

A. $x_1 \in [-1.58, -1.14]$ and $x_2 \in [-0.72, 0.83]$

B. $x_1 \in [-0.9, 0.34]$ and $x_2 \in [0.49, 1.82]$

C. $x_1 \in [-16.09, -14.96]$ and $x_2 \in [16.12, 17.01]$

D. $x_1 \in [-4.15, -3.76]$ and $x_2 \in [11.97, 12.52]$

E. There are no Real solutions.

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

$$15x^2 - 2x - 24 = 0$$

A. $x_1 \in [-3.65, -3.59]$ and $x_2 \in [0.41, 0.55]$

B. $x_1 \in [-0.68, -0.3]$ and $x_2 \in [2.35, 2.74]$

C. $x_1 \in [-18.38, -17.52]$ and $x_2 \in [19.64, 20.09]$

D. $x_1 \in [-1.25, -0.62]$ and $x_2 \in [1.32, 1.36]$

E. $x_1 \in [-6.04, -5.76]$ and $x_2 \in [0.24, 0.37]$

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

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

A. $x_1 \in [-3, -0.8]$ and $x_2 \in [4.29, 5.8]$

B. $x_1 \in [-0.9, 1.2]$ and $x_2 \in [12.38, 14.74]$

C. $x_1 \in [-4.1, -1.9]$ and $x_2 \in [1.13, 2.94]$

D. $x_1 \in [-6.7, -5.1]$ and $x_2 \in [-0.59, 1.02]$

E. $x_1 \in [-13.5, -11.5]$ and $x_2 \in [43.59, 46.44]$

---

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

$$81x^2 + 54x + 8$$

A. $a \in [1, 2], \quad b \in [18, 24], \quad c \in [0.5, 1.9], \text{ and } \quad d \in [34, 38]$

B. $a \in [3, 4], \quad b \in [-5, 8], \quad c \in [25.8, 30.8], \text{ and } \quad d \in [-2, 6]$

C. $a \in [21, 29], \quad b \in [-5, 8], \quad c \in [2.6, 3.1], \text{ and } \quad d \in [-2, 6]$

D. $a \in [9, 12], \quad b \in [-5, 8], \quad c \in [8.1, 11.5], \text{ and } \quad d \in [-2, 6]$

E. None of the above.

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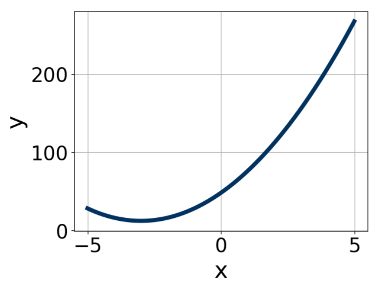
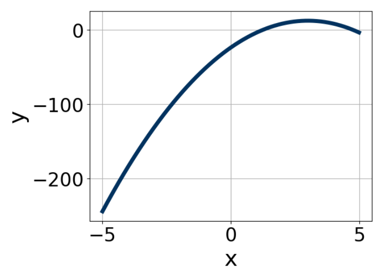
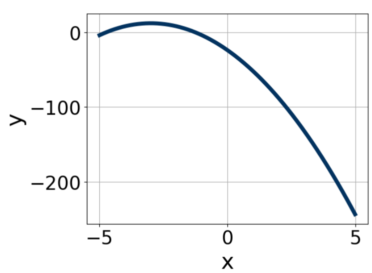
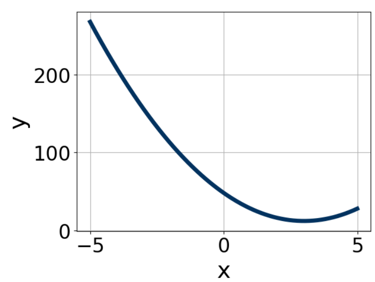
9. Graph the equation below.

$$f(x) = -(x+3)^2 + 12$$

A. 

C. 

B. 

D. 

E. None of the above.

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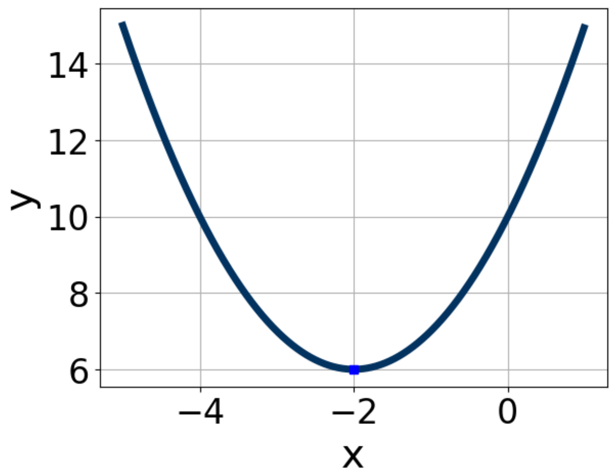
10. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that $a, b,$ and c belong to.



A. $a \in [0.7, 1.5], \quad b \in [3, 8], \text{ and } \quad c \in [8, 11]$

B. $a \in [-3.2, -0.3], \quad b \in [-4, -2], \text{ and } \quad c \in [2, 3]$

C. $a \in [0.7, 1.5], \quad b \in [-4, -2], \text{ and } \quad c \in [-2, -1]$

D. $a \in [-3.2, -0.3], \quad b \in [3, 8], \text{ and } \quad c \in [2, 3]$

E. $a \in [0.7, 1.5], \quad b \in [-4, -2], \text{ and } \quad c \in [8, 11]$
