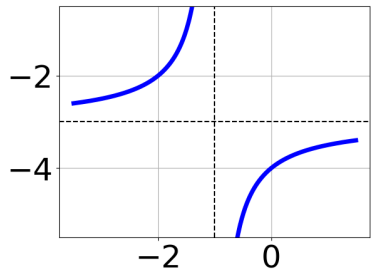
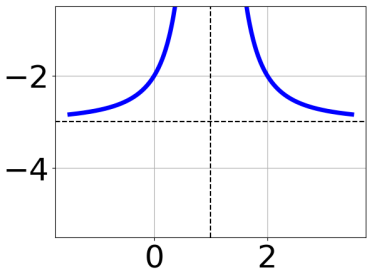
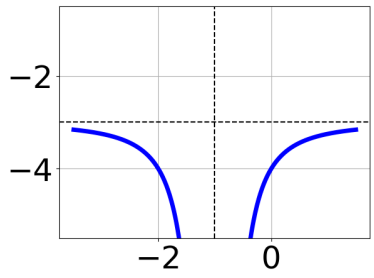
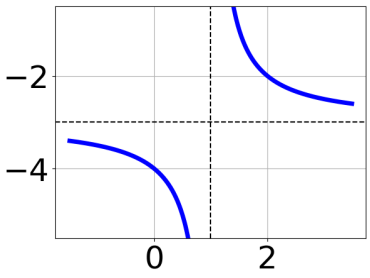
1. Choose the graph of the equation below.

$$f(x) = \frac{-1}{(x+1)^2} - 3$$

A. 

C. 

B. 

D. 

E. None of the above.

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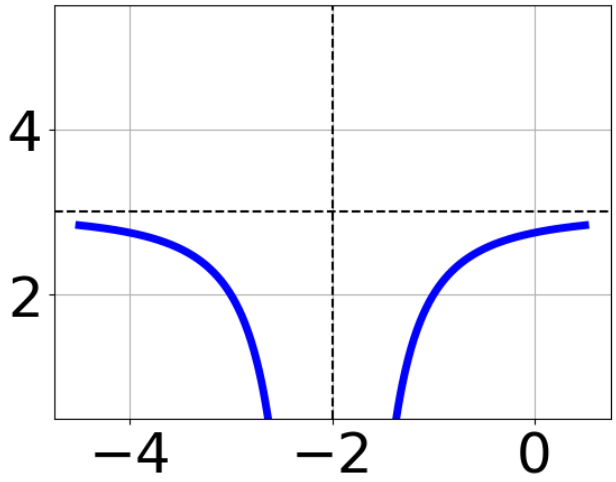
2. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x-2} + 3$

B. $f(x) = \dfrac{-1}{x+2} + 3$

C. $f(x) = \dfrac{-1}{(x+2)^2} + 3$

D. $f(x) = \dfrac{1}{(x-2)^2} + 3$

E. None of the above

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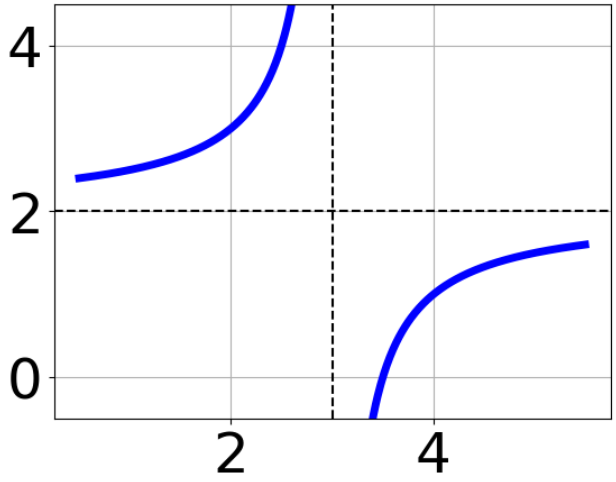
3. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{(x-3)^2} + 2$

B. $f(x) = \dfrac{1}{(x+3)^2} + 2$

C. $f(x) = \dfrac{1}{x+3} + 2$

D. $f(x) = \dfrac{-1}{x-3} + 2$

E. None of the above

---

4. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{54}{48x+24} + 1 = \frac{54}{48x+24}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [-0.5, 1.5]$

C. $x \in [0.09, 0.75]$

D. $x_1 \in [-0.59, 0.21]$ and $x_2 \in [0, 1.1]$

E. $x_1 \in [-0.59, 0.21]$ and $x_2 \in [-1.2, -0.1]$

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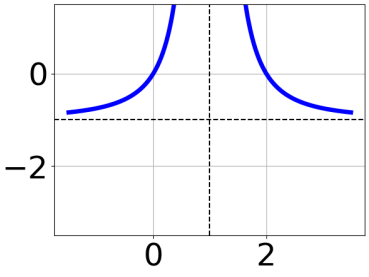
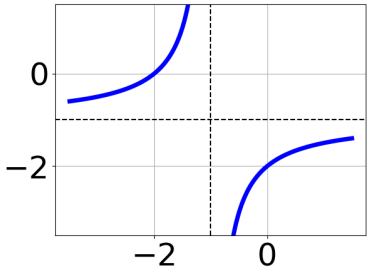
5. Choose the graph of the equation below.

$$f(x) = \frac{-1}{(x+1)^2} + 1$$

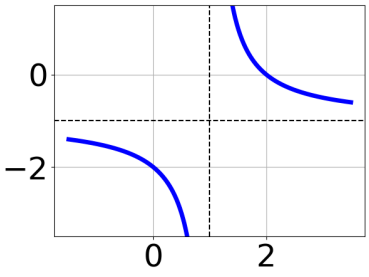
A.



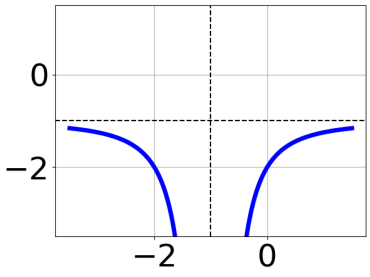
C.



B.



D.



E. None of the above.

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6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-2x}{3x-3} + \frac{-2x^2}{6x^2-24x+18} = \frac{-7}{2x-6}$$

A. $x \in [3.4, 7.5]$

B. All solutions lead to invalid or complex values in the equation.

C. $x \in [0.8, 3.4]$

D. $x_1 \in [-1, 0.9]$ and $x_2 \in [3.77, 6.77]$

E. $x_1 \in [-1, 0.9]$ and $x_2 \in [-3, 3]$

---

7. Determine the domain of the function below.

$$f(x) = \frac{6}{16x^2 - 12x - 18}$$

A. All Real numbers except $x = a$, where $a \in [-13, -10]$

B. All Real numbers except $x = a$, where $a \in [-0.75, 1.25]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-13, -10]$ and $b \in [23, 27]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-0.75, 1.25]$ and $b \in [1.5, 8.5]$

E. All Real numbers.

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8. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{7x}{5x + 2} + \frac{-4x^2}{-10x^2 + 6x + 4} = \frac{-3}{-2x + 2}$$

A. $x_1 \in [-1.45, 0.43]$ and $x_2 \in [-2.3, 0.4]$

B. $x \in [1.24, 2.03]$

C. $x_1 \in [-1.45, 0.43]$ and $x_2 \in [0.1, 2]$

D. $x \in [0.9, 1.67]$

E. All solutions lead to invalid or complex values in the equation.

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9. Determine the domain of the function below.

$$f(x) = \frac{3}{15x^2 - 3x - 18}$$

A. All Real numbers except $x = a$, where $a \in [-1, 0]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-11, -4]$ and $b \in [30, 34]$

C. All Real numbers.

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-1, 0]$ and $b \in [-0.8, 4.2]$

E. All Real numbers except $x = a$, where $a \in [-11, -4]$

---

10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-3}{5x - 4} + -9 = \frac{-3}{-25x + 20}$$

A. $x \in [0.72, 1.72]$

B. $x_1 \in [0.72, 2.72]$ and $x_2 \in [0.79, 0.96]$

C. $x_1 \in [-0.88, 0.12]$ and $x_2 \in [0.62, 0.73]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-0.88, 0.12]$
