1. Determine the domain of the function below.

$$f(x) = \frac{5}{18x^2 + 21x - 30}$$

A. All Real numbers except $x = a$, where $a \in [-21, -14]$

B. All Real numbers except $x = a$, where $a \in [-3, -1]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-3, -1]$ and $b \in [0.83, 2.83]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-21, -14]$ and $b \in [30, 33]$

E. All Real numbers.

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

$$\frac{2x}{2x - 4} + \frac{-7x^2}{14x^2 - 40x + 24} = \frac{-5}{7x - 6}$$

A. $x_1 \in [-1.9, -0.88]$ and $x_2 \in [1.88, 2.1]$

B. $x_1 \in [-1.9, -0.88]$ and $x_2 \in [1.68, 1.89]$

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

D. $x \in [0.92, 4.95]$

E. $x \in [0.32, 1.83]$

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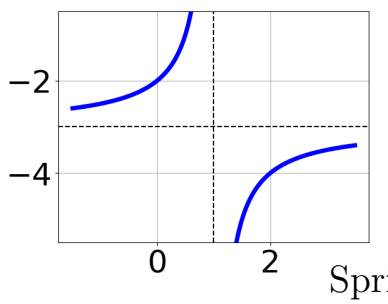
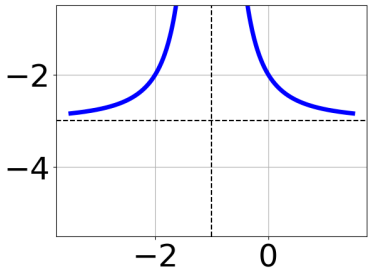
3. Choose the graph of the equation below.

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

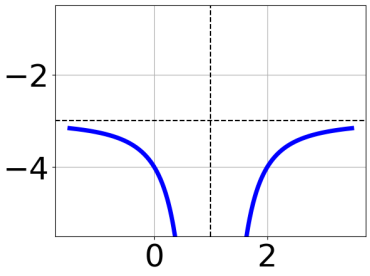
A.



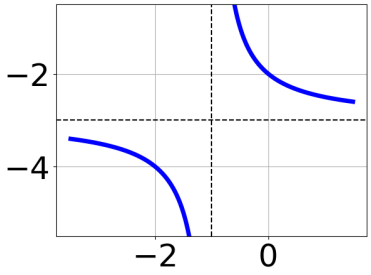
B.



D.



C.



E. None of the above.

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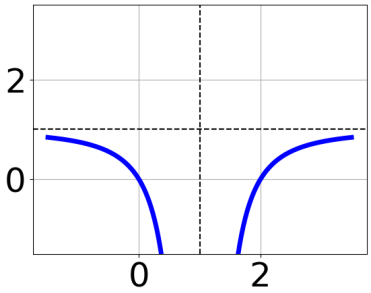
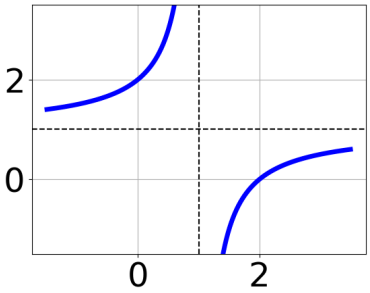
4. Choose the graph of the equation below.

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

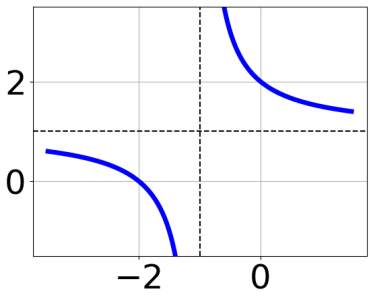
A.



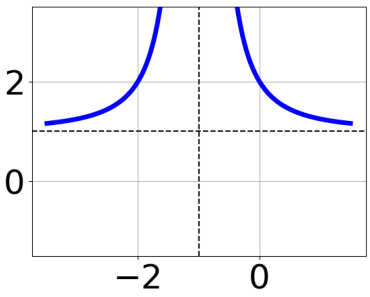
C.



B.



D.



E. None of the above.

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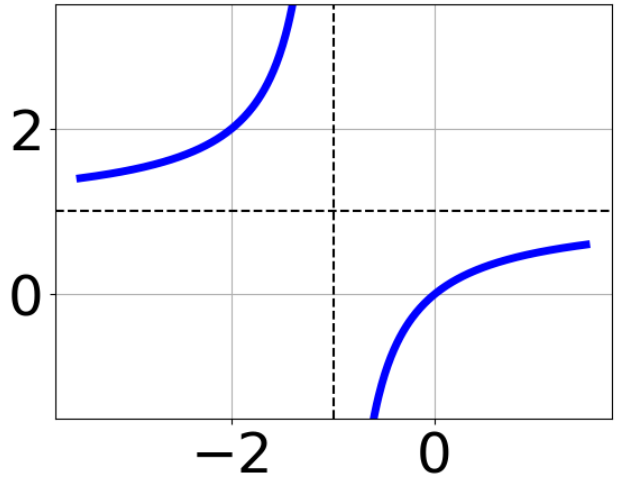
5. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

---

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

$$\frac{-3x}{-2x-4} + \frac{-4x^2}{4x^2+22x+28} = \frac{6}{-2x-7}$$

A. $x_1 \in [-16.05, -15.64]$ and $x_2 \in [-2.8, -1.3]$

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

C. $x_1 \in [-16.05, -15.64]$ and $x_2 \in [-1.4, -0.3]$

D. $x \in [-2.18, 1.01]$

E. $x \in [-4.57, -3.01]$

7. Determine the domain of the function below.

$$f(x) = \frac{6}{30x^2 - 2x - 12}$$

A. All Real numbers.

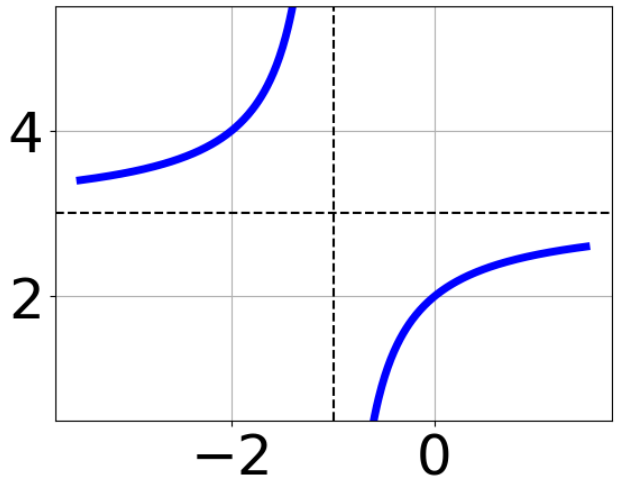
B. All Real numbers except $x = a$ and $x = b$, where $a \in [-0.6, 0.4]$ and $b \in [-0.33, 1.67]$

C. All Real numbers except $x = a$, where $a \in [-19, -12]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-19, -12]$ and $b \in [23, 28]$

E. All Real numbers except $x = a$, where $a \in [-0.6, 0.4]$

8. Choose the equation of the function graphed below.



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

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

C. $f(x) = \frac{-1}{x+1} + 3$

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

E. None of the above

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

$$\frac{-56}{-24x+48}+1=\frac{-56}{-24x+48}$$

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

B. $x \in [1.0, 4.0]$

C. $x_1 \in [-2, 1]$ and $x_2 \in [2, 4]$

D. $x \in [-2, 1]$

E. $x_1 \in [1, 5]$ and $x_2 \in [2, 4]$

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

$$\frac{3}{8x-7}+7=\frac{-9}{-56x+49}$$

A. $x \in [0.84, 1.84]$

B. $x_1 \in [0.4, 0.84]$ and $x_2 \in [0.84, 1.84]$

C. $x \in [-1.06, -0.59]$

D. $x_1 \in [-1.06, -0.59]$ and $x_2 \in [0.84, 1.84]$

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