1. Determine the domain of the function below.

$$f(x) = \frac{4}{12x^2 - 32x + 20}$$

A. All Real numbers except $x = a$, where $a \in [0.72, 1.63]$

B. All Real numbers.

C. All Real numbers except $x = a$ and $x = b$, where $a \in [14.99, 15.36]$ and $b \in [15.62, 16.64]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [0.72, 1.63]$ and $b \in [1.55, 2.28]$

E. All Real numbers except $x = a$, where $a \in [14.99, 15.36]$

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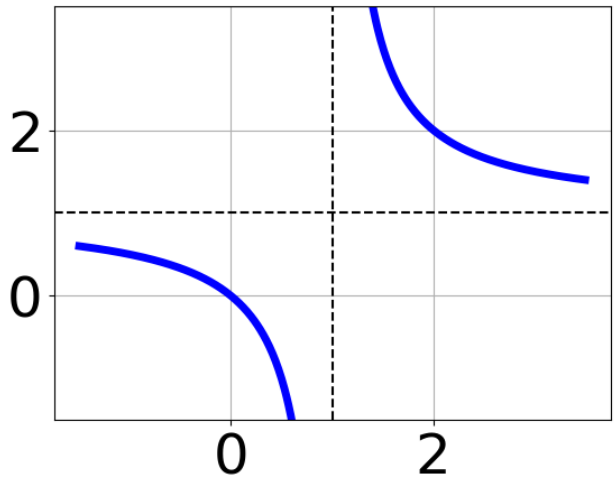
2. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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

$$\frac{-7x}{2x+2} + \frac{-5x^2}{10x^2+24x+14} = \frac{-6}{5x+7}$$

A. $x \in [-1.36, -0.99]$

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

C. $x_1 \in [0.2, 0.48]$ and $x_2 \in [-1.26, -1.09]$

D. $x_1 \in [0.2, 0.48]$ and $x_2 \in [-1.01, -0.99]$

E. $x \in [-1.56, -1.35]$

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

$$\frac{12}{-24x+24} + 1 = \frac{12}{-24x+24}$$

A. $x_1 \in [-2, 0]$ and $x_2 \in [-2, 4]$

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

C. $x \in [1.0, 2.0]$

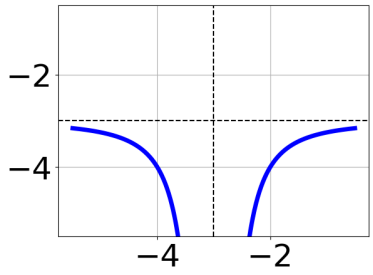
D. $x_1 \in [1, 3]$ and $x_2 \in [-2, 4]$

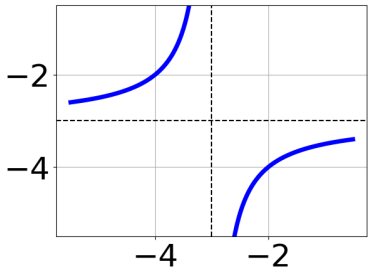
E. $x \in [-2, 0]$

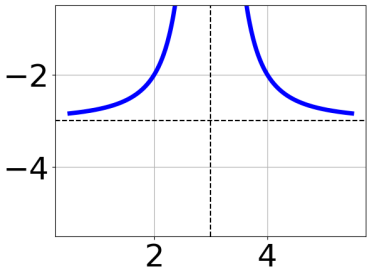
5. Choose the graph of the equation below.

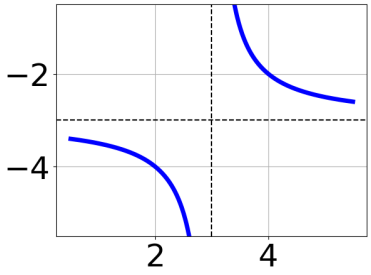
$$f(x) = \frac{1}{(x+3)^2} - 3$$

A.



B. 

D. 

C. 

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.

$$\frac{90}{40x+60}+1=\frac{90}{40x+60}$$

A. $x_1 \in [-3.5, 0.5]$ and $x_2 \in [-1.5, -0.5]$

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

C. $x_1 \in [-3.5, 0.5]$ and $x_2 \in [1.5, 3.5]$

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

E. $x \in [1.5, 2.5]$

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7. Determine the domain of the function below.

$$f(x)=\frac{4}{30x^2-43x+15}$$

A. All Real numbers except $x = a$, where $a \in [14.82, 15.14]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [14.82, 15.14]$ and $b \in [29.61, 30.49]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [0.57, 0.62]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [0.57, 0.62]$ and $b \in [0.68, 1.16]$

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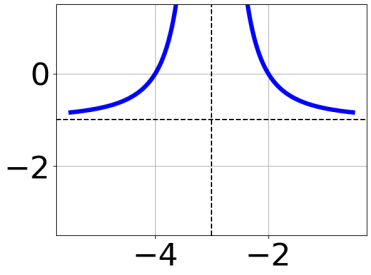
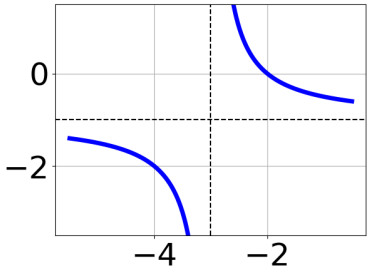
8. Choose the graph of the equation below.

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

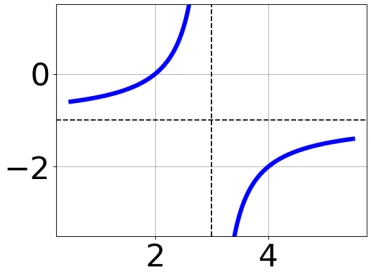
A.



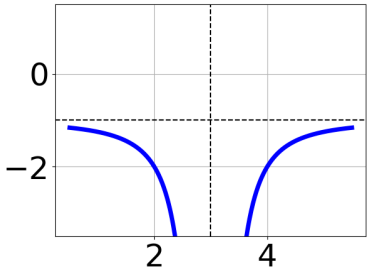
C.



B.



D.



E. None of the above.

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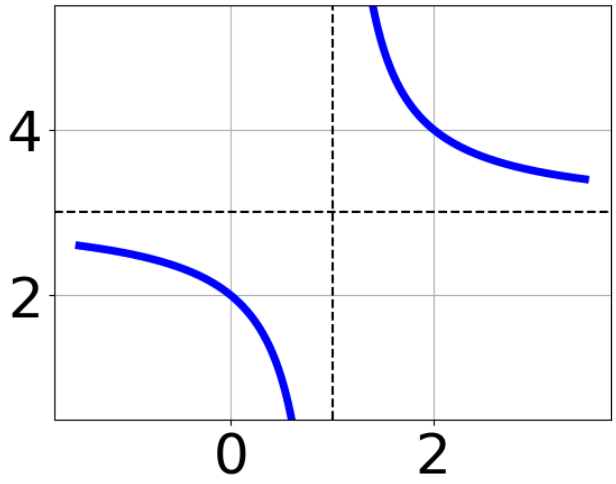
9. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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

$$\frac{5x}{-2x+7} + \frac{-7x^2}{8x^2-16x-42} = \frac{-5}{-4x-6}$$

A. $x_1 \in [-0.08, 1.51]$ and $x_2 \in [3.5, 5.5]$

B. $x \in [-3.4, -1.97]$

C. $x_1 \in [-0.08, 1.51]$ and $x_2 \in [-8.1, 2.9]$

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

E. $x \in [-1.96, -0.9]$
