1. Determine the domain of the function below.

$$f(x) = \frac{4}{24x^2 - 54x + 30}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [19.76, 20.41]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [19.76, 20.41]$ and $b \in [34.9, 36.59]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [0.39, 1.05]$ and $b \in [1.12, 1.67]$

E. All Real numbers except $x = a$, where $a \in [0.39, 1.05]$

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

$$\frac{-4x}{-3x - 7} + \frac{-2x^2}{15x^2 + 56x + 49} = \frac{-7}{-5x - 7}$$

A. $x_1 \in [1.34, 1.76]$ and $x_2 \in [-2.21, -1.38]$

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

C. $x_1 \in [1.34, 1.76]$ and $x_2 \in [-2.48, -2.09]$

D. $x \in [-2.4, -1.65]$

E. $x \in [-1.44, -1.29]$

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

$$\frac{-6}{-3x + 2} + 7 = \frac{4}{9x - 6}$$

A. $x_1 \in [-1.27, -0.51]$ and $x_2 \in [-0.56, 2.44]$

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

C. $x \in [-1.27, -0.51]$

D. $x_1 \in [-0.41, 0.27]$ and $x_2 \in [-0.56, 2.44]$

E. $x \in [-0.56, 1.44]$

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

$$\frac{-42}{63x + 63} + 1 = \frac{-42}{63x + 63}$$

A. $x \in [-1.0, 1.0]$

B. $x_1 \in [-1, 0]$ and $x_2 \in [-2.2, -0.9]$

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

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

E. $x_1 \in [-1, 0]$ and $x_2 \in [0.1, 1.6]$

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5. Determine the domain of the function below.

$$f(x) = \frac{3}{30x^2 + 54x + 24}$$

A. All Real numbers.

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.12, -0.94]$ and $b \in [-0.83, -0.59]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-36.15, -35.93]$ and b $[-20.04, -19.83]$

D. All Real numbers except $x = a$, where $a \in [-1.12, -0.94]$

E. All Real numbers except $x = a$, where $a \in [-36.15, -35.93]$

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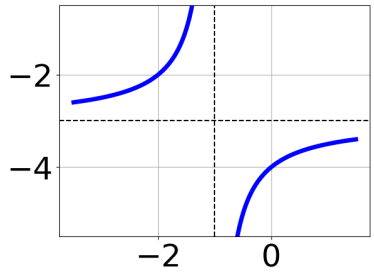
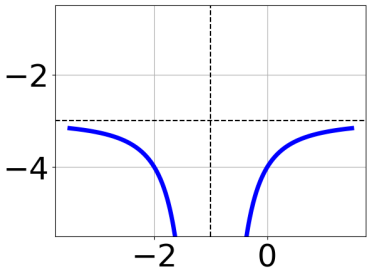
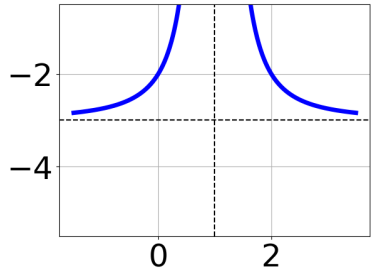
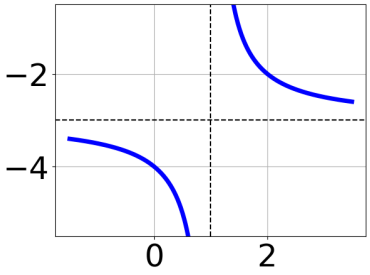
6. Choose the graph of the equation below.

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

A. 

C. 

B. 

D. 

E. None of the above.

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

$$\frac{-4x}{-7x+3} + \frac{-3x^2}{28x^2-61x+21} = \frac{-3}{-4x+7}$$

A. $x_1 \in [-2.31, 0.25]$ and $x_2 \in [-1.57, 2.43]$

B. $x \in [3.37, 4.36]$

C. $x_1 \in [-2.31, 0.25]$ and $x_2 \in [0.58, 6.58]$

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

E. $x \in [1.34, 2.03]$

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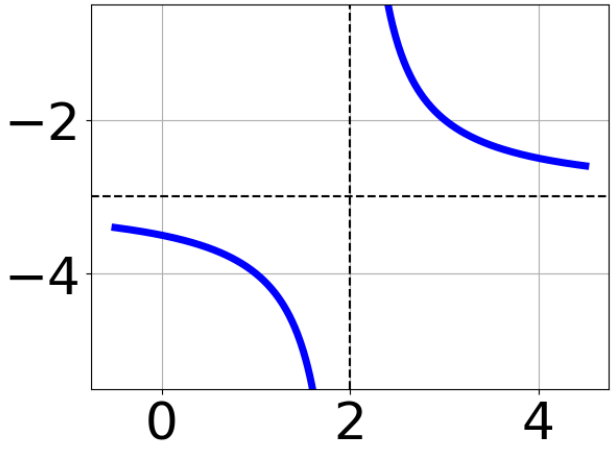
8. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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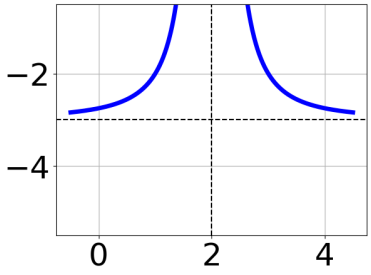
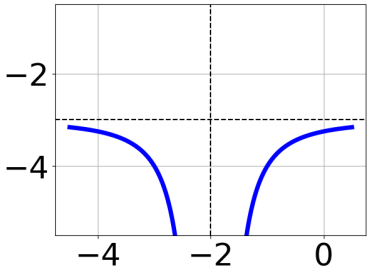
9. Choose the graph of the equation below.

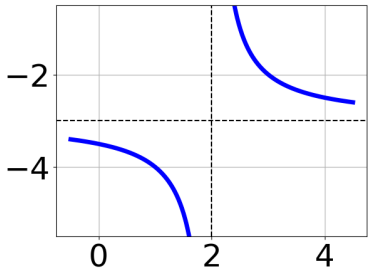
$$f(x) = \frac{-1}{x+2} + 3$$

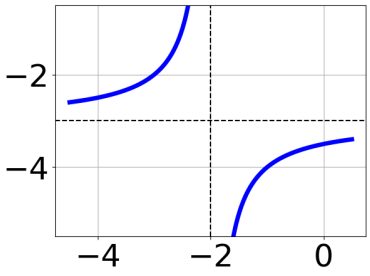
A.



B.



C. 

D. 

E. None of the above.

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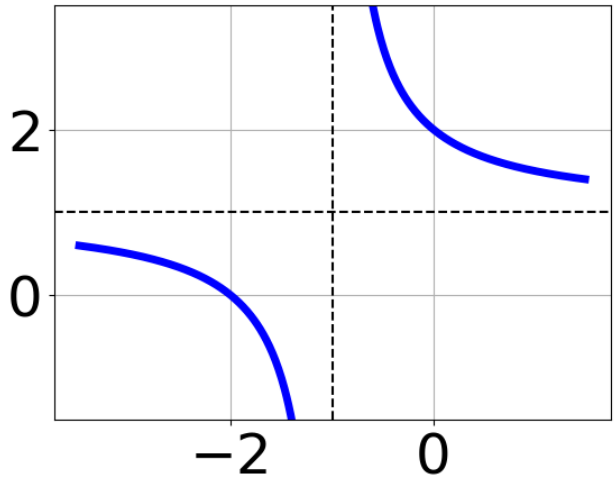
10. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above
