1. Determine the domain of the function below.

$$f(x) = \frac{4}{20x^2 - 9x - 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-22, -15]$ and $b \in [17, 21]$

B. All Real numbers except $x = a$, where $a \in [-22, -15]$

C. All Real numbers except $x = a$, where $a \in [-0.8, 0.2]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-0.8, 0.2]$ and $b \in [1.25, 2.25]$

E. All Real numbers.

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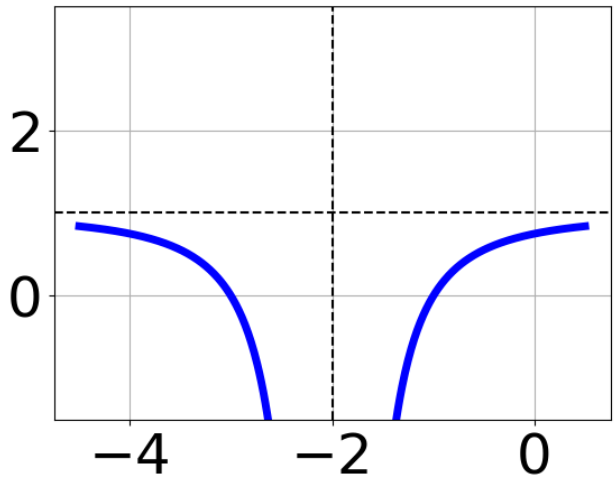
2. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x - 2} + 7$

B. $f(x) = \dfrac{1}{(x - 2)^2} + 7$

C. $f(x) = \dfrac{-1}{x + 2} + 7$

D. $f(x) = \dfrac{-1}{(x + 2)^2} + 7$

E. None of the above

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

$$\frac{-4}{9x-4}+7=\frac{-6}{72x-32}$$

A. $x \in [0.5, 2.5]$

B. $x \in [-0.42, -0.29]$

C. $x_1 \in [-0.42, -0.29]$ and $x_2 \in [-0.5, 1.5]$

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

E. $x_1 \in [0.41, 0.48]$ and $x_2 \in [-0.5, 1.5]$

4. Determine the domain of the function below.

$$f(x)=\frac{4}{18x^2+18x-36}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-19, -16]$ and $b \in [33, 38]$

B. All Real numbers.

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-4, -1]$ and $b \in [0, 4]$

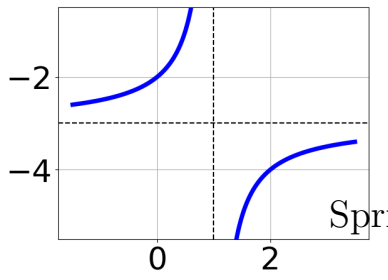
D. All Real numbers except $x = a$, where $a \in [-4, -1]$

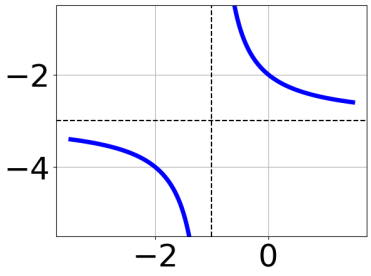
E. All Real numbers except $x = a$, where $a \in [-19, -16]$

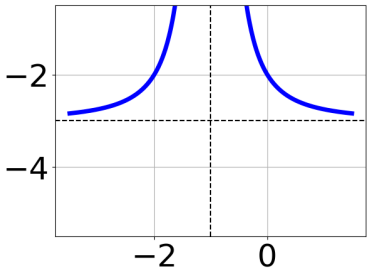
5. Choose the graph of the equation below.

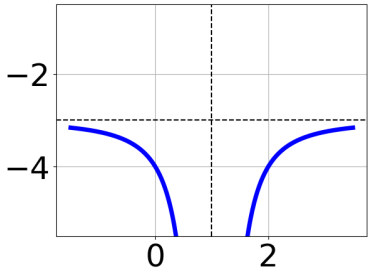
$$f(x)=\frac{1}{x-1}+3$$

A.



B. 

D. 

C. 

E. None of the above.

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

$$\frac{56}{28x+56}+1=\frac{56}{28x+56}$$

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

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

C. $x \in [-3.0, -1.0]$

D. $x_1 \in [-3, 1]$ and $x_2 \in [1, 6]$

E. $x \in [2, 4]$

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

$$\frac{6x}{4x-6}+\frac{-4x^2}{28x^2-58x+24}=\frac{-5}{7x-4}$$

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

B. $x_1 \in [-1.15, 0.02]$ and $x_2 \in [0.91, 1.23]$

C. $x \in [0.93, 1.79]$

D. $x \in [0.54, 0.72]$

E. $x_1 \in [-1.15, 0.02]$ and $x_2 \in [1.09, 1.6]$

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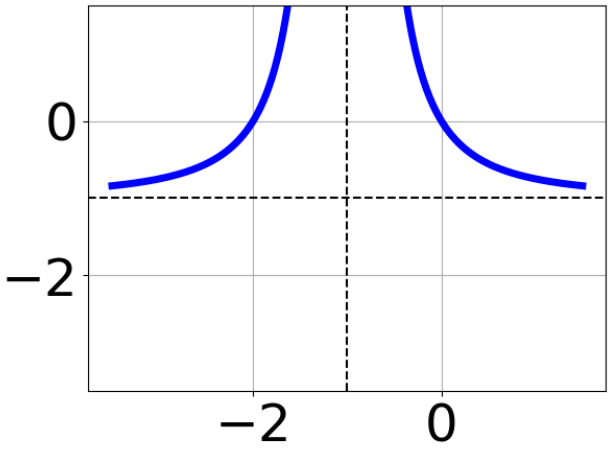
8. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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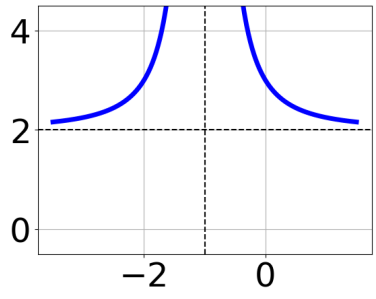
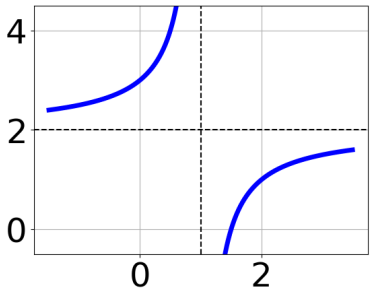
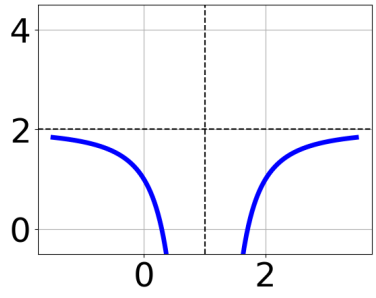
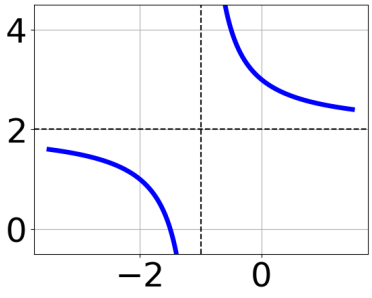
9. Choose the graph of the equation below.

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

A. 

C. 

B. 

D. 

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.

$$\frac{5x}{-2x-5} + \frac{-4x^2}{-6x^2-x+35} = \frac{3}{3x-7}$$

A. $x \in [2.16, 2.42]$

B. $x_1 \in [0.44, 1.31]$ and $x_2 \in [-3.2, -1.4]$

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

D. $x \in [0.76, 2.18]$

E. $x_1 \in [0.44, 1.31]$ and $x_2 \in [-0.6, 2.8]$
