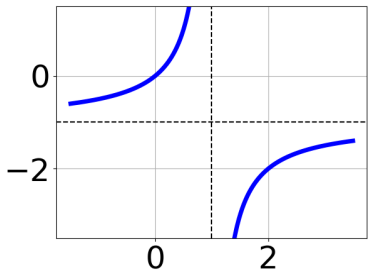
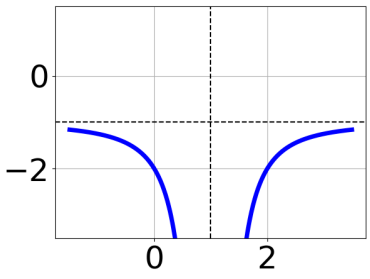
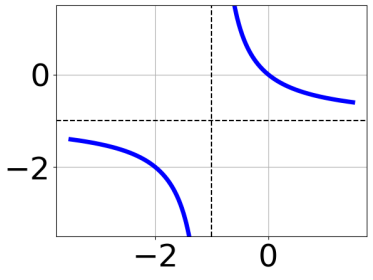
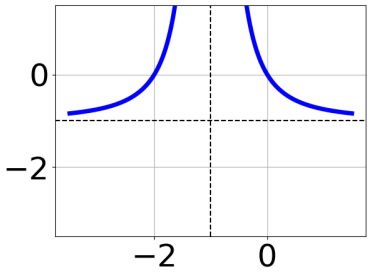
1. Choose the graph of the equation below.

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

A. 

C. 

B. 

D. 

E. None of the above.

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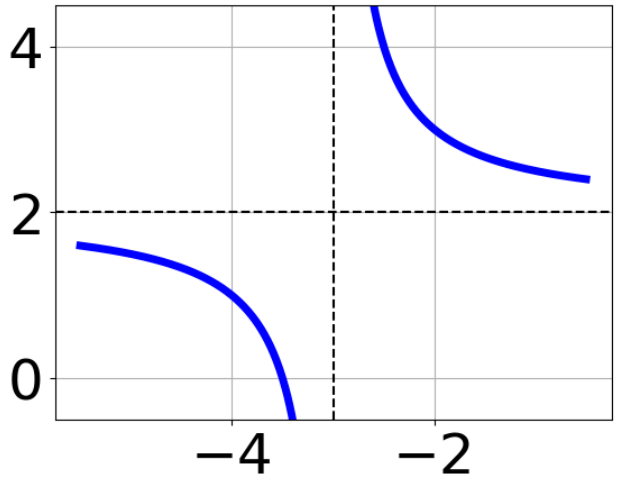
2. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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

$$\frac{60}{-72x-60} + 1 = \frac{60}{-72x-60}$$

A. $x \in [0.4, 2.8]$

B. $x_1 \in [-1.5, -0.1]$ and $x_2 \in [-1.83, 0.17]$

C. $x_1 \in [-1.5, -0.1]$ and $x_2 \in [-0.17, 3.83]$

D. $x \in [-0.83, 0.17]$

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

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4. Determine the domain of the function below.

$$f(x) = \frac{4}{20x^2 + x - 30}$$

A. All Real numbers.

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-4.25, -0.25]$ and $b \in [1.2, 2.2]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-20, -17]$ and $b \in [30, 32]$

D. All Real numbers except $x = a$, where $a \in [-20, -17]$

E. All Real numbers except $x = a$, where $a \in [-4.25, -0.25]$

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

$$\frac{6x}{5x-5} + \frac{-4x^2}{20x^2-35x+15} = \frac{-7}{4x-3}$$

A. $x \in [-1.83, -1.71]$

B. $x_1 \in [0.84, 1.05]$ and $x_2 \in [-4.81, 0.19]$

C. $x_1 \in [0.84, 1.05]$ and $x_2 \in [-1, 4]$

D. $x \in [0.7, 0.85]$

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

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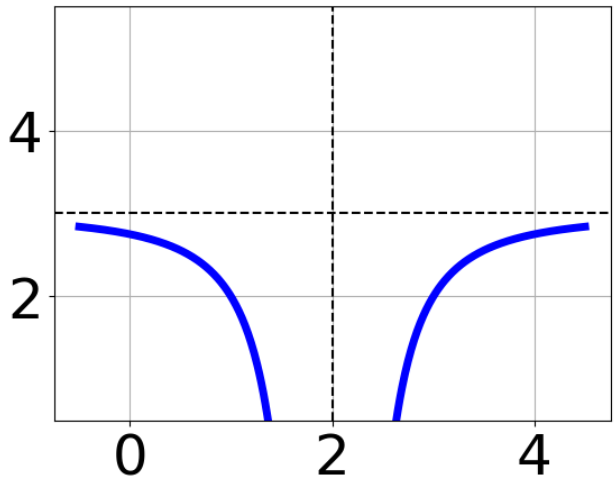
6. Choose the equation of the function graphed below.



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

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

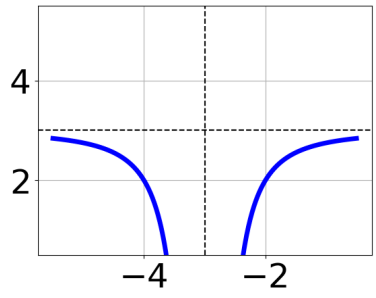
C. $f(x) = \dfrac{-1}{(x+2)^2} + 3$

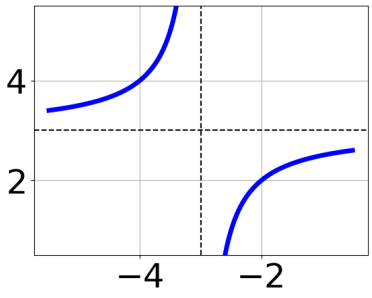
D. $f(x) = \dfrac{1}{x-2} + 3$

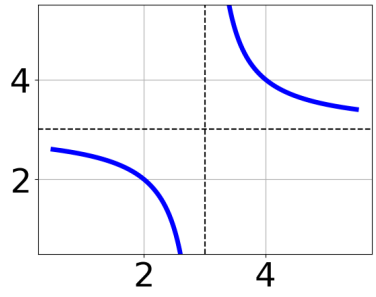
E. None of the above

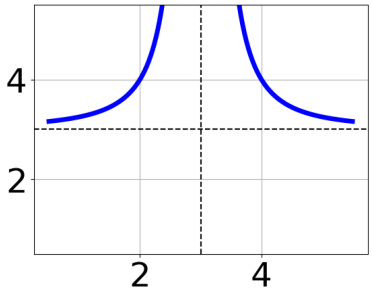
7. Choose the graph of the equation below.

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

A.


C.


B.


D.


E. None of the above.

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

$$\frac{9}{5x-8} + -5 = \frac{6}{-45x+72}$$

A. $x_1 \in [-1.43, -0.9]$ and $x_2 \in [0.99, 4.99]$

B. $x \in [-1.43, -0.9]$

C. $x_1 \in [1.62, 1.9]$ and $x_2 \in [0.99, 4.99]$

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

E. $x \in [1.99, 2.99]$

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

$$\frac{2x}{3x+5} + \frac{-7x^2}{12x^2+29x+15} = \frac{4}{4x+3}$$

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

B. $x \in [7.7, 9.8]$

C. $x_1 \in [-3.1, -1.3]$ and $x_2 \in [6.38, 9.38]$

D. $x \in [-2.1, 3.3]$

E. $x_1 \in [-3.1, -1.3]$ and $x_2 \in [-7.67, -0.67]$

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10. Determine the domain of the function below.

$$f(x) = \frac{6}{24x^2 - 48x + 18}$$

A. All Real numbers except $x = a,$ where $a \in [17, 18.3]$

B. All Real numbers except $x = a$ and $x = b,$ where $a \in [-0.1, 0.8]$ and $b \in [1, 2.2]$

C. All Real numbers except $x = a,$ where $a \in [-0.1, 0.8]$

D. All Real numbers except $x = a$ and $x = b,$ where $a \in [17, 18.3]$ and $b \in [23.8, 25.4]$

E. All Real numbers.
