1. Determine the domain of the function below.

$$f(x) = \frac{4}{12x^2 - 34x + 24}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [11.86, 12.1]$ and $b \in [23.71, 24.01]$

B. All Real numbers.

C. All Real numbers except $x = a$, where $a \in [1.07, 1.38]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [1.07, 1.38]$ and $b \in [1.41, 1.58]$

E. All Real numbers except $x = a$, where $a \in [11.86, 12.1]$

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

$$\frac{7x}{3x - 2} + \frac{-2x^2}{-21x^2 - x + 10} = \frac{5}{-7x - 5}$$

A. $x_1 \in [0.12, 0.44]$ and $x_2 \in [-3.15, -0.15]$

B. $x \in [-0.88, -0.65]$

C. $x_1 \in [0.12, 0.44]$ and $x_2 \in [-0.33, 4.67]$

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

E. $x \in [-1.37, -1.07]$

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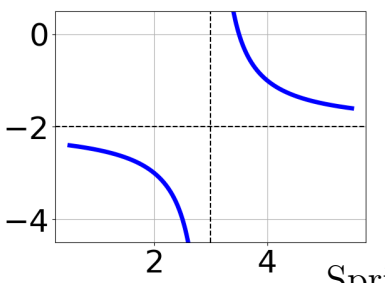
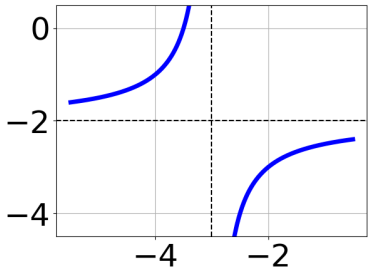
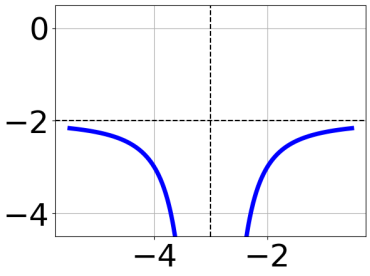
3. Choose the graph of the equation below.

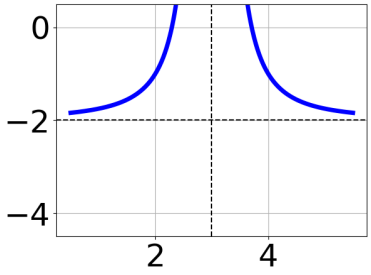
$$f(x) = \frac{1}{(x - 3)^2} - 2$$

A.



B. 

D. 

C. 

E. None of the above.

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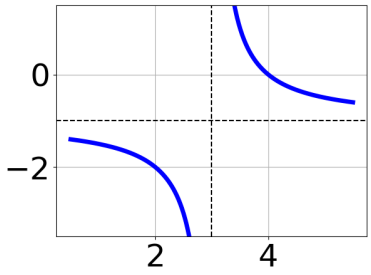
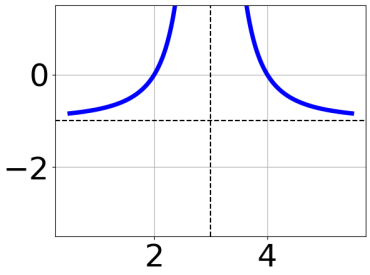
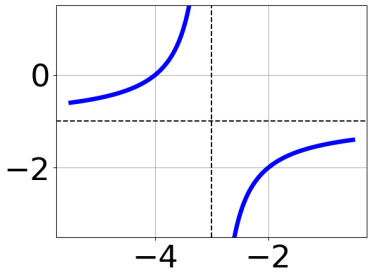
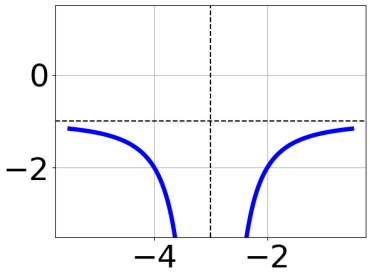
4. Choose the graph of the equation below.

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

A. 

C. 

B. 

D. 

E. None of the above.

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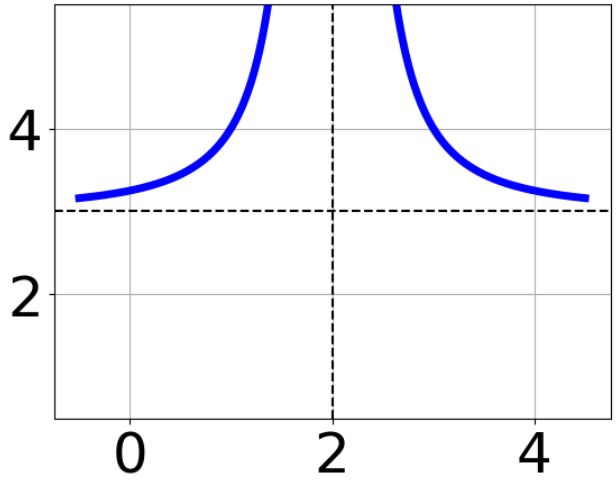
5. Choose the equation of the function graphed below.



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

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

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

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

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.

$$\frac{3x}{5x+6} + \frac{-5x^2}{10x^2+22x+12} = \frac{-4}{2x+2}$$

A. $x_1 \in [-25.06, -25.02]$ and $x_2 \in [-1.2, -1.19]$

B. $x_1 \in [-25.06, -25.02]$ and $x_2 \in [-1, -0.85]$

C. $x \in [-1.02, -0.97]$

D. $x \in [-0.99, -0.93]$

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

7. Determine the domain of the function below.

$$f(x) = \frac{4}{12x^2 - 36x + 24}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [0.8, 1.4]$ and $b \in [1.7, 2.6]$

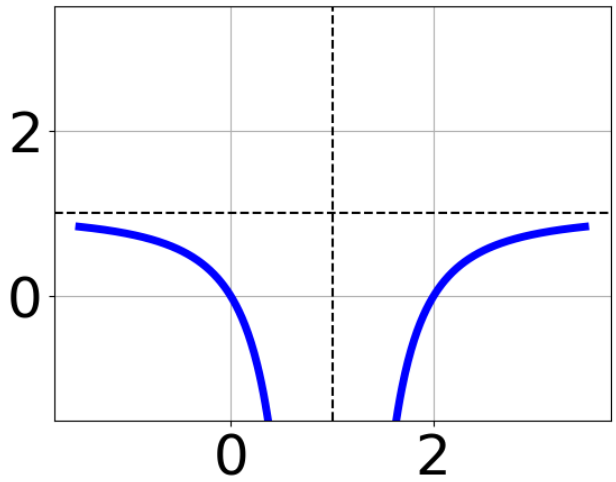
B. All Real numbers except $x = a$, where $a \in [15.7, 17]$

C. All Real numbers.

D. All Real numbers except $x = a$ and $x = b$, where $a \in [15.7, 17]$ and $b \in [16.3, 19.5]$

E. All Real numbers except $x = a$, where $a \in [0.8, 1.4]$

8. Choose the equation of the function graphed below.



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

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

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

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

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.

$$\frac{-3}{5x+4} + 4 = \frac{-6}{15x+12}$$

A. $x_1 \in [-0.85, -0.71]$ and $x_2 \in [0.85, 2.85]$

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

C. $x \in [0.75, 1.05]$

D. $x_1 \in [-0.97, -0.78]$ and $x_2 \in [-1.75, 0.25]$

E. $x \in [-0.75, 0.25]$

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

$$\frac{18}{18x+81} + 1 = \frac{18}{18x+81}$$

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

B. $x \in [-4.5, -2.5]$

C. $x \in [4.5, 6.5]$

D. $x_1 \in [-5.5, -3.5]$ and $x_2 \in [4.5, 6.5]$

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