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

$$\frac{-3x}{4x-6} + \frac{-5x^2}{-8x^2+28x-24} = \frac{-4}{-2x+4}$$

A. $x \in [-9.18, -6.04]$

B. $x_1 \in [2.95, 4.01]$ and $x_2 \in [-10.29, -6.29]$

C. $x \in [1.1, 2.44]$

D. $x_1 \in [2.95, 4.01]$ and $x_2 \in [-4.5, 8.5]$

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

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2. Determine the domain of the function below.

$$f(x) = \frac{5}{15x^2+27x+12}$$

A. All Real numbers except $x = a$, where $a \in [-20.09, -19.99]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.04, -0.84]$ and $b \in [-0.81, -0.71]$

C. All Real numbers except $x = a$, where $a \in [-1.04, -0.84]$

D. All Real numbers.

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-20.09, -19.99]$ and b $[-9.08, -8.92]$

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

$$\frac{-30}{25x+20} + 1 = \frac{-30}{25x+20}$$

A. $x_1 \in [-1.5, -0.6]$ and $x_2 \in [-3.8, 0.2]$

B. $x \in [0.6, 1.1]$

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

D. $x \in [-0.8, 1.2]$

E. $x_1 \in [-1.5, -0.6]$ and $x_2 \in [0.8, 2.8]$

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

$$\frac{-52}{-78x + 104} + 1 = \frac{-52}{-78x + 104}$$

A. $x \in [1.33, 2.33]$

B. $x_1 \in [1, 2]$ and $x_2 \in [1.33, 2.33]$

C. $x_1 \in [-1.7, -1]$ and $x_2 \in [1.33, 2.33]$

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

E. $x \in [-1.7, -1]$

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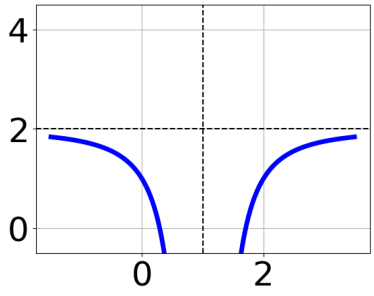
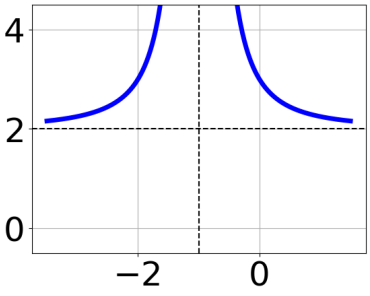
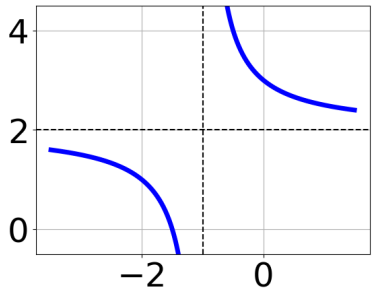
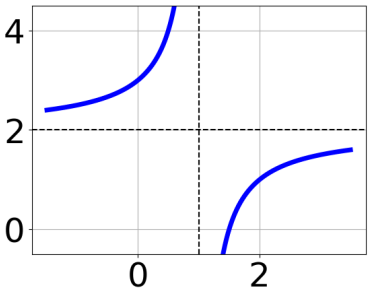
5. Choose the graph of the equation below.

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

A.


C.


B.


D.


E. None of the above.

6. Determine the domain of the function below.

$$f(x) = \frac{3}{18x^2 + 21x - 30}$$

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

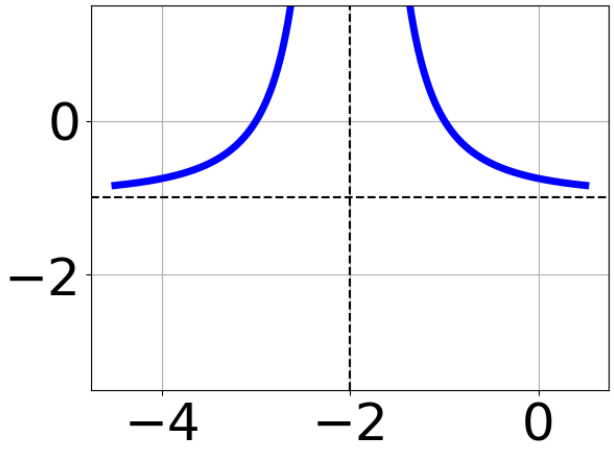
B. All Real numbers except $x = a$ and $x = b$, where $a \in [-19, -16]$ and $b \in [29, 33]$

C. All Real numbers.

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-2, 0]$ and $b \in [0.83, 2.83]$

E. All Real numbers except $x = a$, where $a \in [-2, 0]$

7. Choose the equation of the function graphed below.



A. $f(x) = \frac{-1}{(x+2)^2} - 4$

B. $f(x) = \frac{1}{(x-2)^2} - 4$

C. $f(x) = \frac{1}{x-2} - 4$

D. $f(x) = \frac{-1}{x+2} - 4$

E. None of the above

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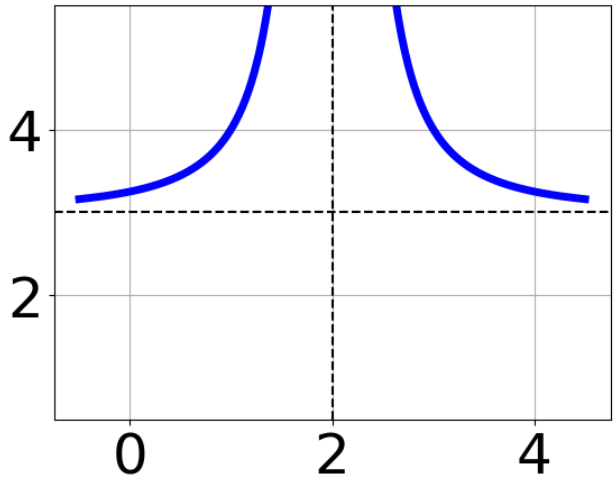
8. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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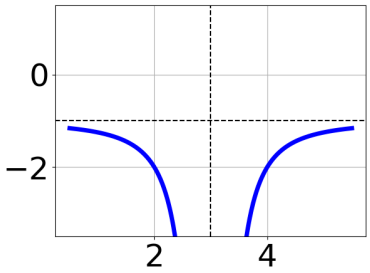
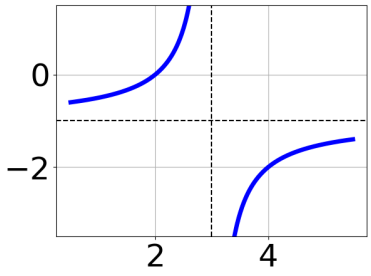
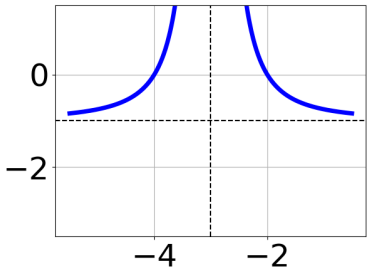
9. Choose the graph of the equation below.

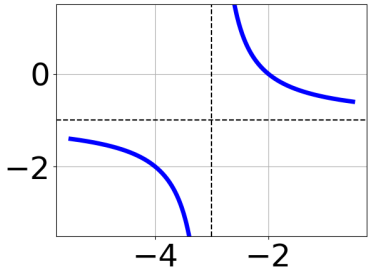
$$f(x) = \frac{1}{(x+3)^2} + 1$$

A.



B. 

D. 

C. 

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.

$$\frac{-3x}{-4x+2} + \frac{-3x^2}{-12x^2+18x-6} = \frac{-3}{3x-3}$$

A. $x_1 \in [0.22, 0.94]$ and $x_2 \in [-0.4, 3.1]$

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

C. $x \in [0.67, 1.51]$

D. $x \in [-1.32, -0.49]$

E. $x_1 \in [0.22, 0.94]$ and $x_2 \in [-3.8, -0.7]$
