1. Determine the domain of the function below.

$$f(x) = \frac{6}{15x^2 + 27x + 12}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.16, -0.98]$ and $b \in [-0.99, -0.75]$

B. All Real numbers except $x = a$, where $a \in [-20.05, -19.94]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [-1.16, -0.98]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-20.05, -19.94]$ and $b \in [-9.06, -9]$

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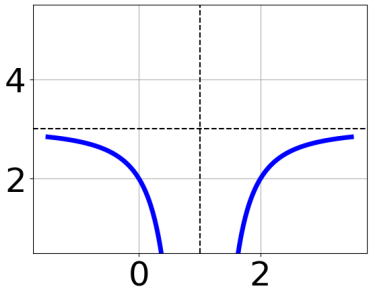
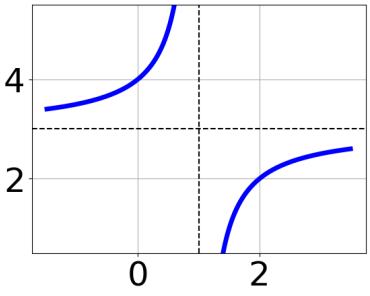
2. Choose the graph of the equation below.

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

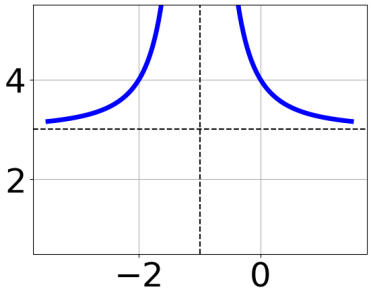
A.



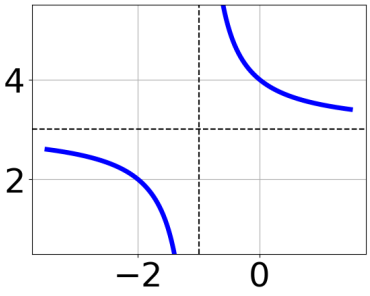
C.



B.



D.



E. None of the above.

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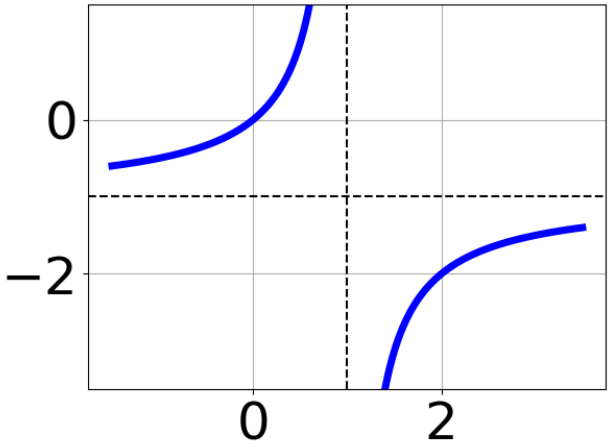
3. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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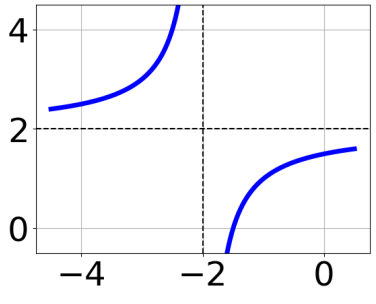
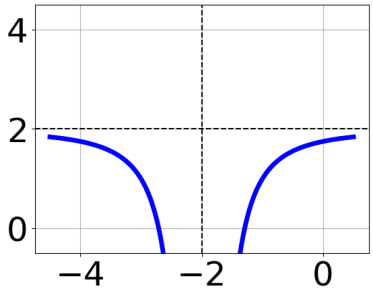
4. Choose the graph of the equation below.

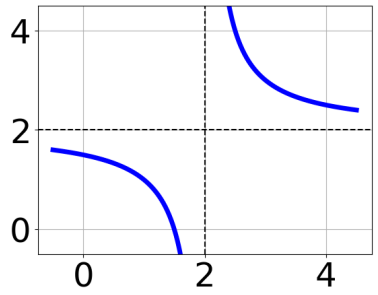
$$f(x) = \frac{1}{(x-2)^2} + 2$$

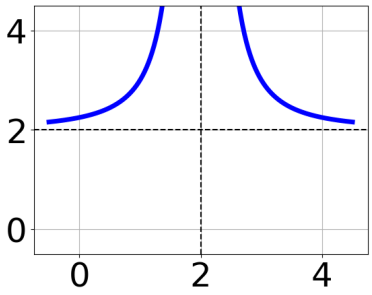
A.



B.



C. 

D. 

E. None of the above.

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

$$\frac{88}{44x-22}+1=\frac{88}{44x-22}$$

A. $x \in [-1.3, -0.4]$

B. $x_1 \in [-1.3, -0.4]$ and $x_2 \in [0.5, 1.5]$

C. $x \in [0.5, 1.5]$

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

E. $x_1 \in [0.3, 1.5]$ and $x_2 \in [0.5, 1.5]$

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

$$\frac{-6x}{-7x-7}+\frac{-2x^2}{14x^2+49x+35}=\frac{-3}{-2x-5}$$

A. $x_1 \in [0.96, 1.29]$ and $x_2 \in [-3.59, -1.43]$

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

C. $x_1 \in [0.96, 1.29]$ and $x_2 \in [-1.5, -0.92]$

D. $x \in [-3.1, -2.03]$

E. $x \in [-2.28, -1.93]$

7. Determine the domain of the function below.

$$f(x) = \frac{5}{24x^2 - 14x - 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.9, -0.1]$ and $b \in [0.6, 2.8]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-25.1, -23.2]$ and $b \in [19.1, 20.6]$

C. All Real numbers except $x = a$, where $a \in [-25.1, -23.2]$

D. All Real numbers except $x = a$, where $a \in [-1.9, -0.1]$

E. All Real numbers.

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

$$\frac{3}{3x - 2} + 6 = \frac{-2}{27x - 18}$$

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

B. $x_1 \in [0.26, 0.47]$ and $x_2 \in [-0.51, 3.49]$

C. $x \in [-0.89, -0.84]$

D. $x \in [0.49, 2.49]$

E. $x_1 \in [-0.89, -0.84]$ and $x_2 \in [-0.51, 3.49]$

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

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

A. $x \in [-2.4, -0.1]$

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

C. $x_1 \in [-0.4, 0.7]$ and $x_2 \in [-6.93, -0.93]$

D. $x_1 \in [-0.4, 0.7]$ and $x_2 \in [0, 11]$

E. $x \in [-5.1, -1.5]$

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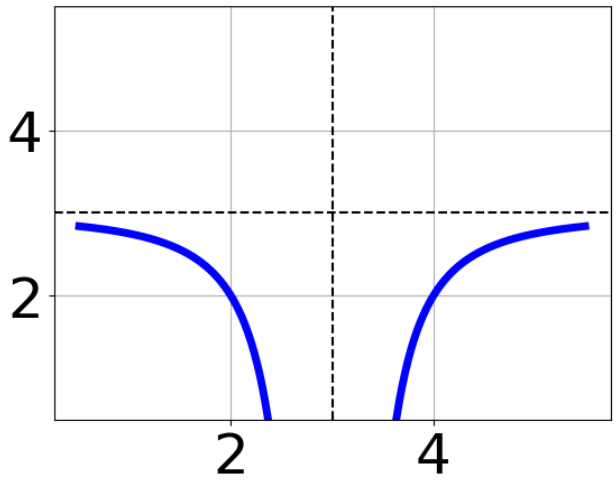
10. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above
