1. Determine the domain of the function below.

$$f(x) = \frac{5}{25x^2 + 55x + 30}$$

A. All Real numbers except $x = a$, where $a \in [-1.43, -1.16]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-30.2, -29.61]$ and $b \in [-25.05, -24.65]$

C. All Real numbers except $x = a$, where $a \in [-30.2, -29.61]$

D. All Real numbers.

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.43, -1.16]$ and $b \in [-1.04, -0.29]$

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

$$\frac{-5}{9x - 2} + 9 = \frac{5}{-63x + 14}$$

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

B. $x \in [0.28, 1.28]$

C. $x_1 \in [0, 0.7]$ and $x_2 \in [0.28, 0.41]$

D. $x \in [-0.7, 0]$

E. $x_1 \in [-0.7, 0]$ and $x_2 \in [0.26, 0.31]$

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

$$\frac{-4x}{-5x + 5} + \frac{-6x^2}{25x^2 + 5x - 30} = \frac{6}{-5x - 6}$$

A. $x \in [-2.6, -0.3]$

B. $x \in [-7.5, -2.7]$

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

D. $x_1 \in [0.1, 1]$ and $x_2 \in [-6.35, -0.35]$

E. $x_1 \in [0.1, 1]$ and $x_2 \in [-1, 4]$

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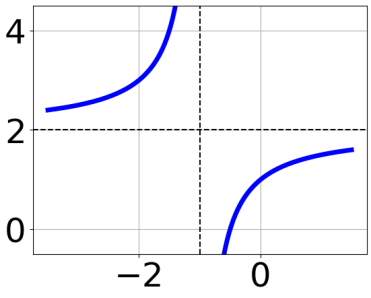
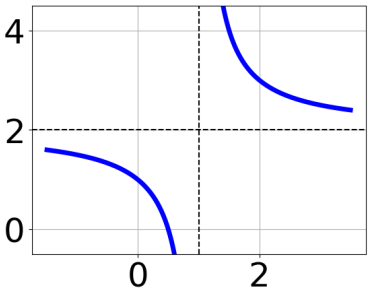
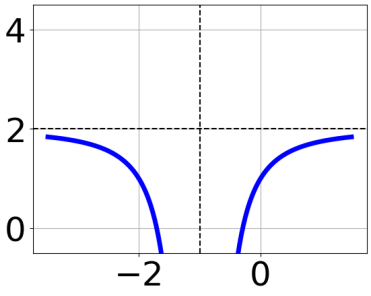
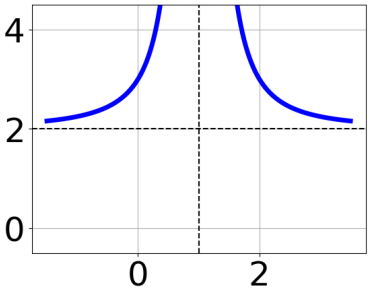
4. Choose the graph of the equation below.

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

A.


C.


B.


D.


E. None of the above.

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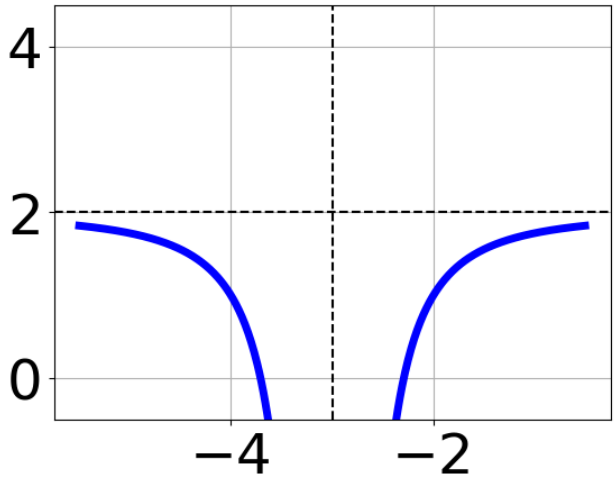
5. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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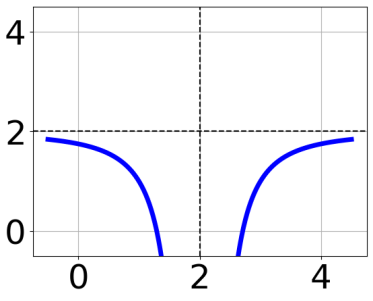
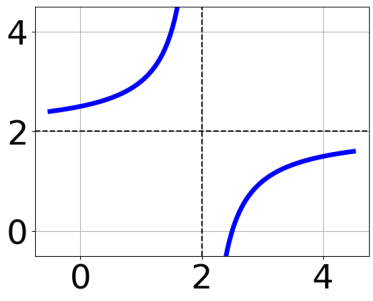
6. Choose the graph of the equation below.

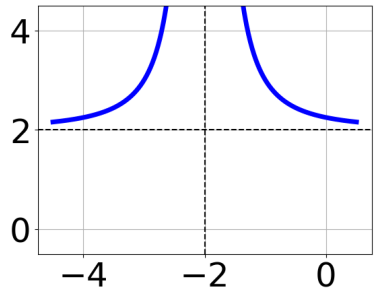
$$f(x) = \frac{-1}{(x+2)^2} + 2$$

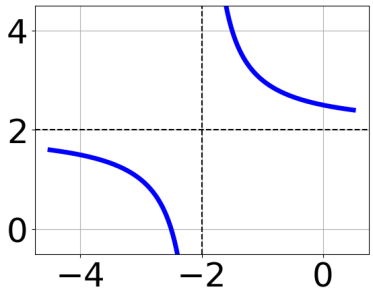
A.



B.



C. 

D. 

E. None of the above.

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

$$\frac{6x}{-6x-6} + \frac{-4x^2}{30x^2+48x+18} = \frac{4}{-5x-3}$$

A. $x_1 \in [-2.26, -0.66]$ and $x_2 \in [-7, 0]$

B. $x \in [0.19, 2.22]$

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

D. $x_1 \in [-2.26, -0.66]$ and $x_2 \in [0.93, 5.93]$

E. $x \in [-0.63, -0.06]$

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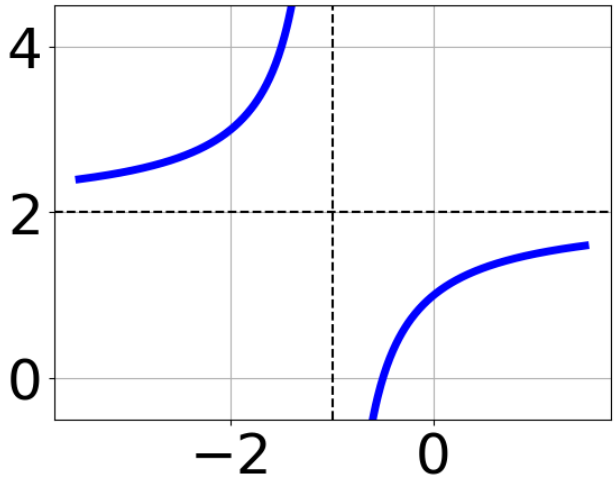
8. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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9. Determine the domain of the function below.

$$f(x) = \frac{4}{30x^2 - 48x + 18}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [14.83, 15.94]$ and $b \in [35.83, 36.19]$

B. All Real numbers except $x = a$, where $a \in [14.83, 15.94]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [0.43, 0.72]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [0.43, 0.72]$ and $b \in [0.7, 1.44]$

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

$$\frac{3}{5x - 9} + 5 = \frac{4}{-40x + 72}$$

A. $x_1 \in [-3.94, -0.94]$ and $x_2 \in [1.65, 1.71]$

B. $x \in [-3.94, -0.94]$

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

D. $x_1 \in [1.66, 2.66]$ and $x_2 \in [1.79, 2.05]$

E. $x \in [1.66, 2.66]$
