1. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 32x + 20}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [13.79, 15.39]$ and $b \in [15.86, 16.46]$

B. All Real numbers.

C. All Real numbers except $x = a$, where $a \in [0.09, 1.33]$

D. All Real numbers except $x = a$, where $a \in [13.79, 15.39]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [0.09, 1.33]$ and $b \in [1.55, 1.9]$

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

$$\frac{-50}{-50x + 30} + 1 = \frac{-50}{-50x + 30}$$

A. $x_1 \in [-0.4, 1.6]$ and $x_2 \in [0.6, 3.6]$

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

C. $x \in [-1.6, 0.4]$

D. $x \in [0.6, 1.6]$

E. $x_1 \in [-1.6, 0.4]$ and $x_2 \in [0.6, 3.6]$

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

$$\frac{3x}{2x + 6} + \frac{-3x^2}{12x^2 + 50x + 42} = \frac{3}{6x + 7}$$

A. $x_1 \in [0.04, 1.11]$ and $x_2 \in [-3.91, -1.76]$

B. $x_1 \in [0.04, 1.11]$ and $x_2 \in [-2.04, -1.39]$

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

D. $x \in [-1.62, -0.61]$

E. $x \in [-2.44, -1.5]$

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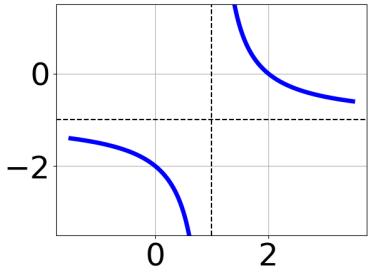
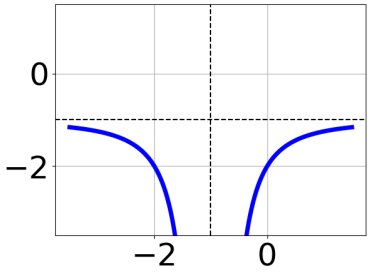
4. Choose the graph of the equation below.

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

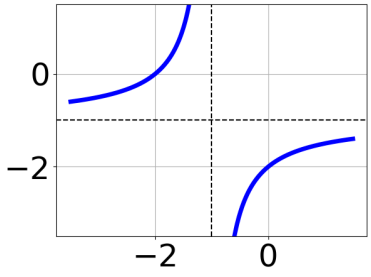
A.



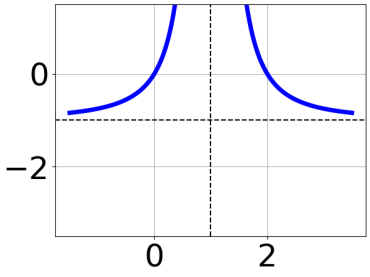
C.



B.



D.



E. None of the above.

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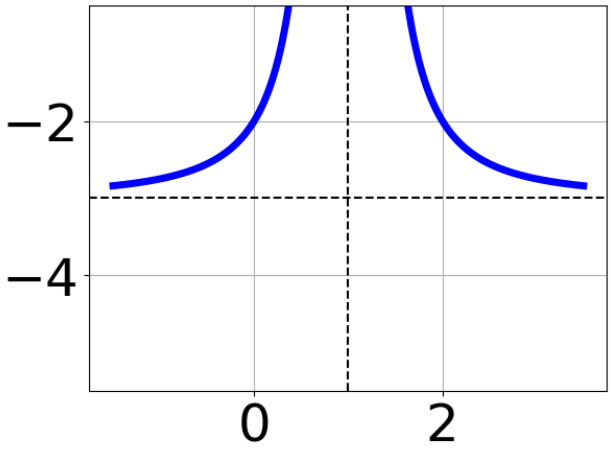
5. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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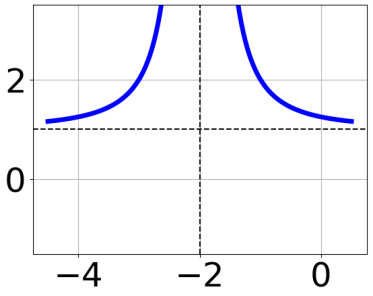
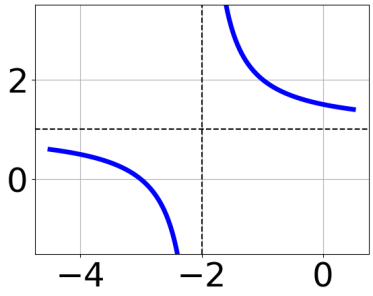
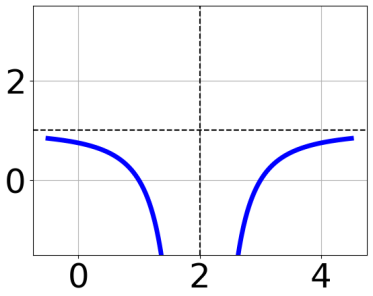
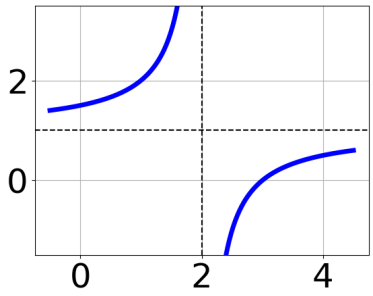
6. Choose the graph of the equation below.

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

A. 

C. 

B. 

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.

$$\frac{5x}{-7x-2} + \frac{-4x^2}{21x^2+34x+8} = \frac{6}{-3x-4}$$

A. $x \in [-1.7, -1.32]$

B. $x \in [1.21, 2.75]$

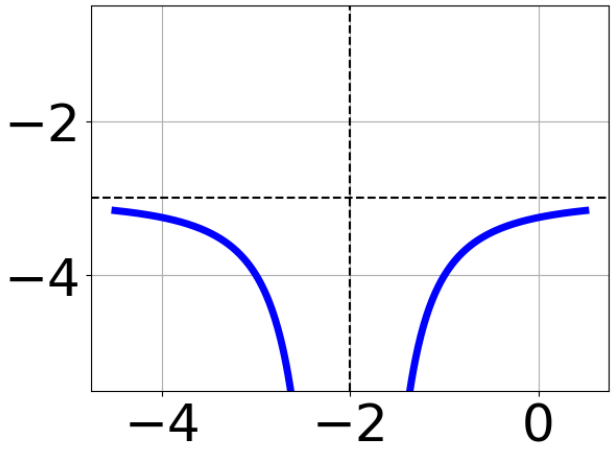
C. $x_1 \in [-0.75, 0.03]$ and $x_2 \in [-0.2, 4.1]$

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

E. $x_1 \in [-0.75, 0.03]$ and $x_2 \in [-2.5, 0.7]$

---

8. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{x-2} - 8$

B. $f(x) = \dfrac{1}{x+2} - 8$

C. $f(x) = \dfrac{-1}{(x-2)^2} - 8$

D. $f(x) = \dfrac{1}{(x+2)^2} - 8$

E. None of the above

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9. Determine the domain of the function below.

$$f(x) = \frac{6}{20x^2 - 49x + 30}$$

A. All Real numbers.

B. All Real numbers except $x = a$ and $x = b$, where $a \in [19.93, 20.12]$ and $b \in [29.94, 30.1]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [1.17, 1.21]$ and $b \in [1.25, 1.36]$

D. All Real numbers except $x = a$, where $a \in [19.93, 20.12]$

E. All Real numbers except $x = a$, where $a \in [1.17, 1.21]$

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

$$\frac{4}{9x - 6} + 2 = \frac{6}{-27x + 18}$$

A. $x \in [0.33, 2.33]$

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

C. $x \in [-1, 0]$

D. $x_1 \in [-1, 0]$ and $x_2 \in [-0.8, 0.4]$

E. $x_1 \in [-0.67, 2.33]$ and $x_2 \in [0.7, 2.2]$
