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

$$\frac{49}{14x - 21} + 1 = \frac{49}{14x - 21}$$

A. $x_1 \in [-0.5, 2.5]$ and $x_2 \in [0.5, 3.5]$

B. $x \in [-1.5, 0.5]$

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

D. $x_1 \in [-1.5, 0.5]$ and $x_2 \in [0.5, 3.5]$
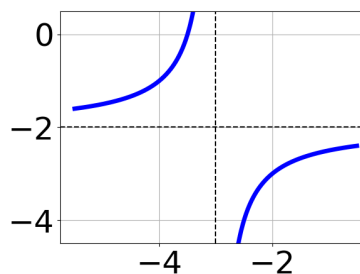
E. $x \in [1.5, 3.5]$

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

$$\frac{-2x}{-2x + 5} + \frac{-5x^2}{10x^2 - 33x + 20} = \frac{3}{-5x + 4}$$
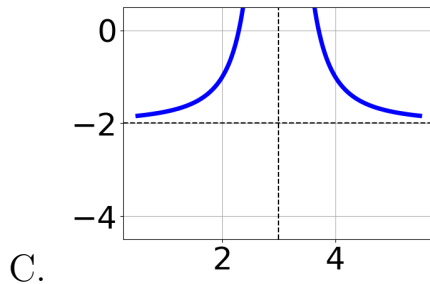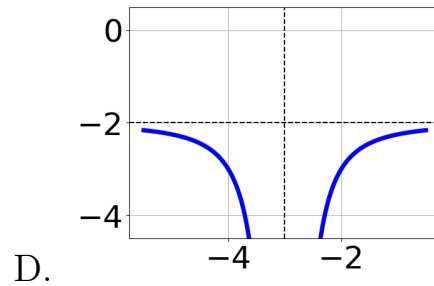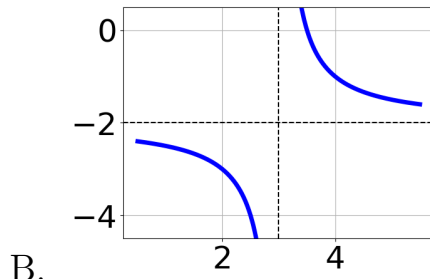
A. $x_1 \in [-2.05, 0]$ and $x_2 \in [2.22, 3]$

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

C. $x \in [0.59, 1.07]$

D. $x_1 \in [-2.05, 0]$ and $x_2 \in [1.45, 2.18]$

E. $x \in [1.54, 2.42]$

3. Choose the graph of the equation below.
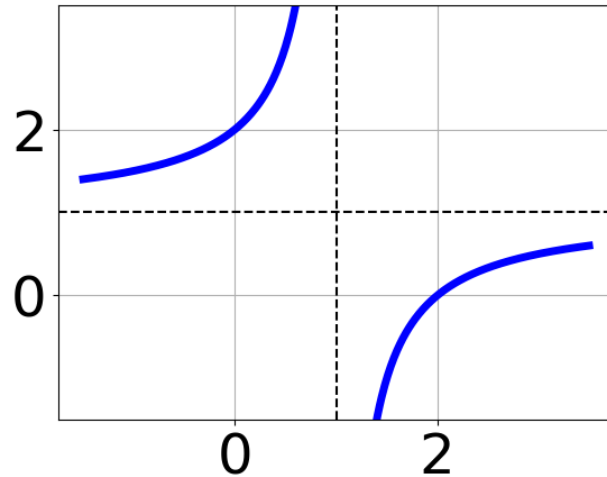
$$f(x) = \frac{-1}{(x + 3)^2} - 2$$

A.

B.

D.

C.

E. None of the above.

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4. Determine the domain of the function below.

$$f(x) = \frac{6}{16x^2 - 4x - 30}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.4, -1.1]$ and $b \in [-0.7, 2]$

B. All Real numbers except $x = a$, where $a \in [-1.4, -1.1]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [-20.5, -17.7]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-20.5, -17.7]$ and $b \in [23.2, 24.2]$

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5. Choose the equation of the function graphed below.

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

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

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

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

E. None of the above

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6. Determine the domain of the function below.

$$f(x) = \frac{5}{20x^2 + 46x + 24}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [-24.89, -23.8]$

C. All Real numbers except $x = a$, where $a \in [-1.91, -1.37]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-24.89, -23.8]$ and $b \in [-20.58, -19.95]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.91, -1.37]$ and $b \in [-1.34, -0.73]$

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

$$\frac{4x}{4x - 6} + \frac{-7x^2}{8x^2 - 20x + 12} = \frac{3}{2x - 2}$$

   A. $x_1 \in [0.89, 0.96]$ and $x_2 \in [-4.5, 2.5]$

   B. $x_1 \in [0.89, 0.96]$ and $x_2 \in [17.05, 21.05]$

   C. $x \in [19.04, 19.06]$

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

   E. $x \in [0.95, 1.01]$

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

$$\frac{-8}{3x - 9} + 9 = \frac{9}{15x - 45}$$

   A. $x \in [-3.64, -0.64]$

   B. $x \in [2.36, 5.36]$

   C. $x_1 \in [-3.64, -0.64]$ and $x_2 \in [1.9, 3.5]$

   D. $x_1 \in [2.36, 6.36]$ and $x_2 \in [3.4, 3.8]$

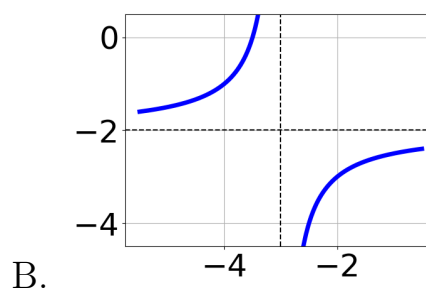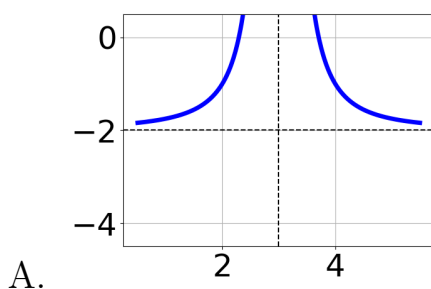   E. All solutions lead to invalid or complex values in the equation.

9. Choose the equation of the function graphed below.
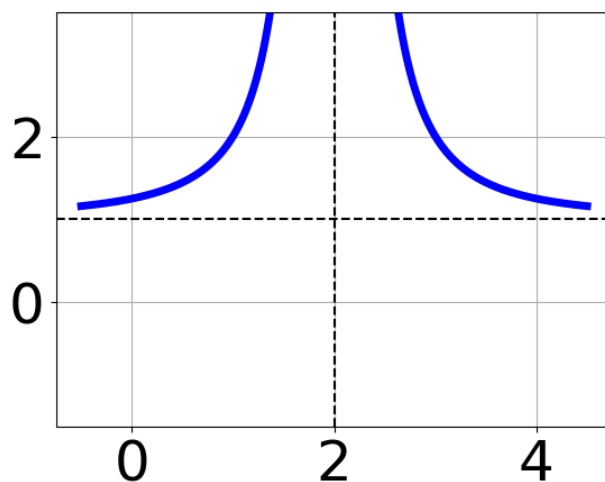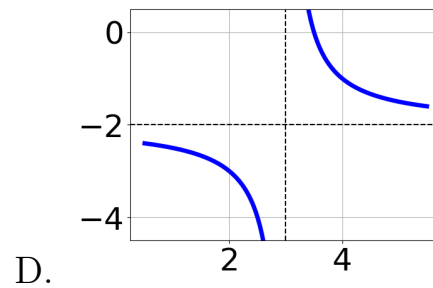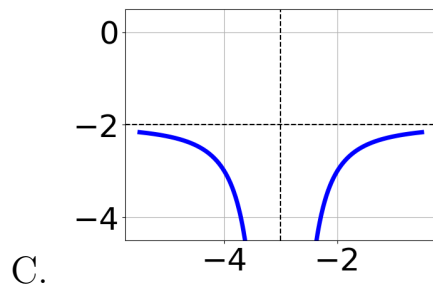
A. $f(x) = \dfrac{-1}{x+2} - 4$

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

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

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

E. None of the above

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10. Choose the graph of the equation below.

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

A.

B.

C.

D.

E. None of the above.