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

$$\frac{2x}{-4x-4} + \frac{-4x^2}{16x^2+24x+8} = \frac{4}{-4x-2}$$

A. $x_1 \in [-1.15, -0.74]$ and $x_2 \in [-1.4, 0.7]$

B. $x \in [1.36, 1.93]$

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

D. $x \in [-0.58, -0.05]$

E. $x_1 \in [-1.15, -0.74]$ and $x_2 \in [0.7, 3.3]$

---

2. Determine the domain of the function below.

$$f(x) = \frac{6}{12x^2+21x+9}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [-12, -12]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.04, -0.83]$ and $b \in [-0.88, -0.66]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-12, -12]$ and $b \in [-9.1, -8.84]$

E. All Real numbers except $x = a$, where $a \in [-1.04, -0.83]$

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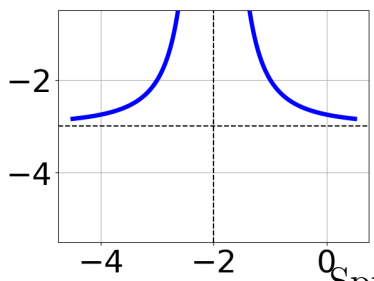
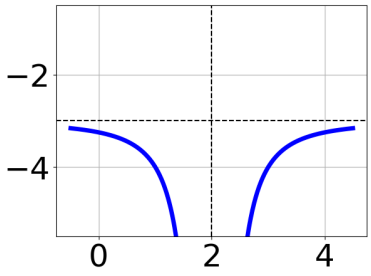
3. Choose the graph of the equation below.

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

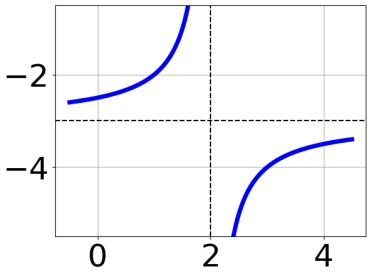
A.



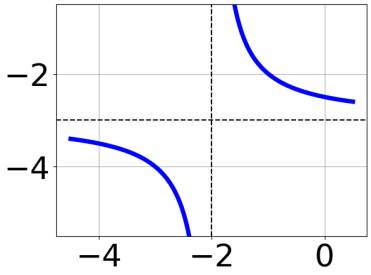
B.



D.



C.



E. None of the above.

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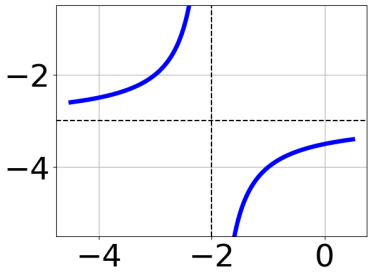
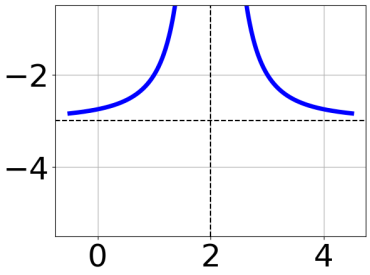
4. Choose the graph of the equation below.

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

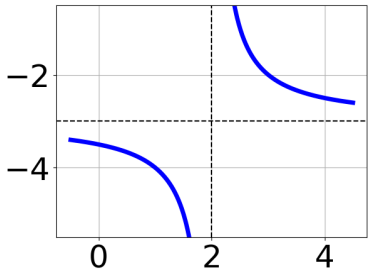
A.



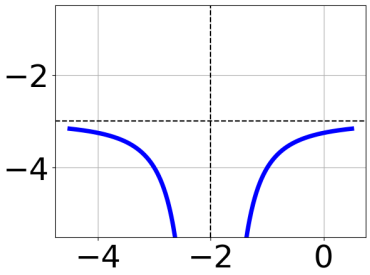
C.



B.



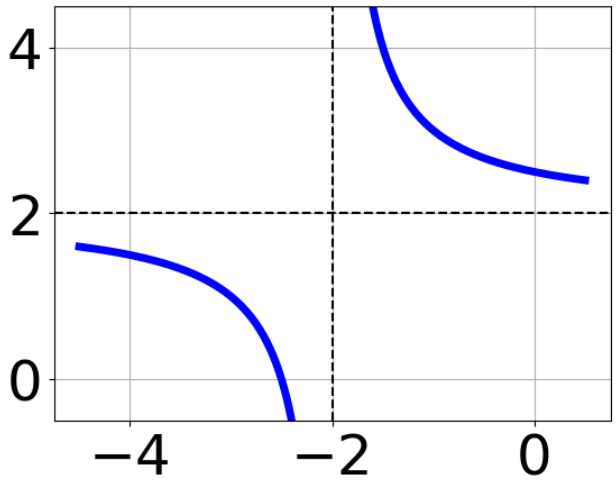
D.



E. None of the above.

---

5. Choose the equation of the function graphed below.



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

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

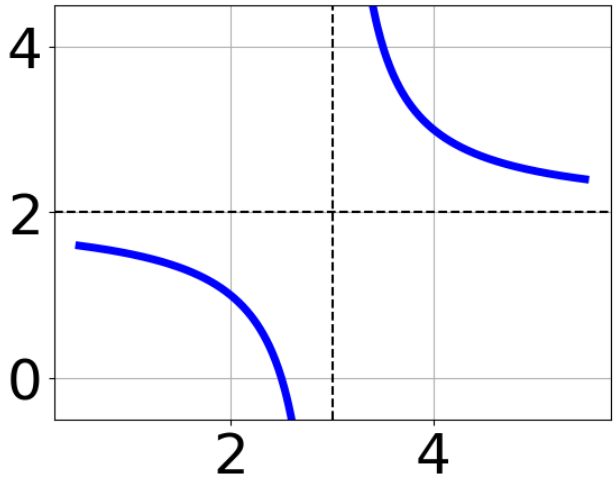
C. $f(x) = \dfrac{1}{x+2} + 2$

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

E. None of the above

---

6. 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

---

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

$$\frac{5}{-3x+2} + 5 = \frac{-2}{18x-12}$$

A. $x_1 \in [0, 2]$ and $x_2 \in [1.02, 1.19]$

B. $x_1 \in [-1.5, 0.8]$ and $x_2 \in [0.93, 1.09]$

C. $x \in [0.98, 1.98]$

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

E. $x \in [-1.5, 0.8]$

---

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

$$\frac{-21}{28x+35} + 1 = \frac{-21}{28x+35}$$

A. $x_1 \in [-1.25, 0.75]$ and $x_2 \in [-3.25, -0.25]$

B. $x \in [-1.25, -0.25]$

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

D. $x \in [1.25, 4.25]$

E. $x_1 \in [-1.25, 0.75]$ and $x_2 \in [0.25, 2.25]$

---

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

$$\frac{-5x}{-3x-7} + \frac{-6x^2}{21x^2+55x+14} = \frac{-3}{-7x-2}$$

A. $x \in [-0.68, 0.07]$

B. $x_1 \in [0.27, 1.06]$ and $x_2 \in [-4, -1.6]$

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

D. $x \in [-0.88, -0.63]$

E. $x_1 \in [0.27, 1.06]$ and $x_2 \in [-1.2, -0.8]$

---

10. Determine the domain of the function below.

$$f(x) = \frac{5}{36x^2+6x-30}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-36.1, -35.8]$ and $b \in [29.5, 30.3]$

B. All Real numbers except $x = a$, where $a \in [-36.1, -35.8]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.3, -0.3]$ and $b \in [-0.3, 1.8]$

D. All Real numbers.

E. All Real numbers except $x = a$, where $a \in [-1.3, -0.3]$
