1. Determine the domain of the function below.

$$f(x) = \frac{4}{18x^2 - 54x + 36}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [17.2, 19.3]$ and $b \in [35, 36.9]$

B. All Real numbers except $x = a$, where $a \in [17.2, 19.3]$

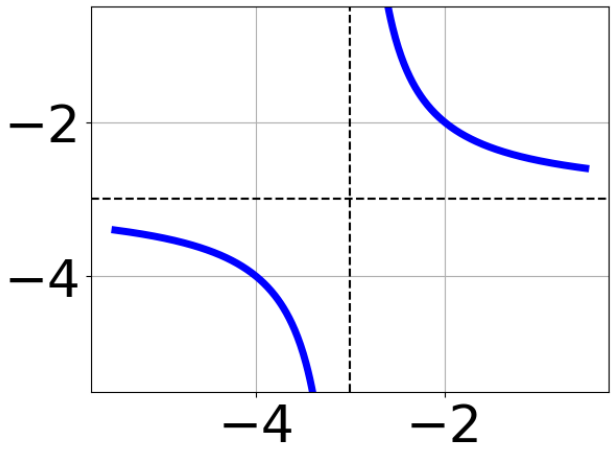
C. All Real numbers except $x = a$, where $a \in [-0.1, 1.8]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-0.1, 1.8]$ and $b \in [1.5, 2.8]$

E. All Real numbers.

---

2. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

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

$$\frac{-56}{112x-28}+1=\frac{-56}{112x-28}$$

A. $x_1 \in [-0.6, -0.1]$ and $x_2 \in [-0.75, 3.25]$

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

C. $x_1 \in [-0.2, 1.3]$ and $x_2 \in [-0.75, 3.25]$

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

E. $x \in [-0.6, -0.1]$

4. Determine the domain of the function below.

$$f(x)=\frac{5}{20x^2-8x-12}$$

A. All Real numbers except $x = a$, where $a \in [-15.4, -13.8]$

B. All Real numbers.

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-15.4, -13.8]$ and $b \in [15.4, 17.3]$

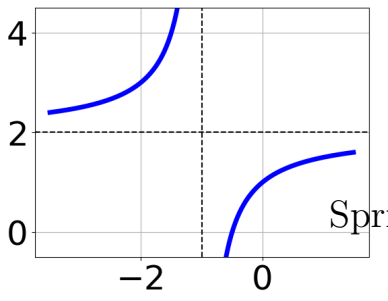
D. All Real numbers except $x = a$ and $x = b$, where $a \in [-1, -0.2]$ and $b \in [0.8, 1.7]$

E. All Real numbers except $x = a$, where $a \in [-1, -0.2]$

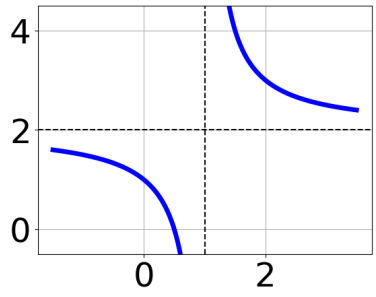
5. Choose the graph of the equation below.

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

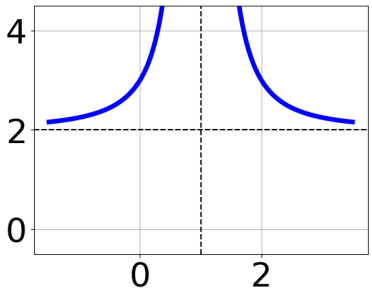
A.



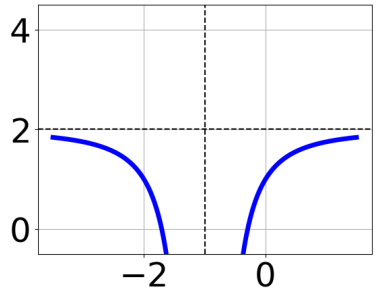
B.



D.



C.



E. None of the above.

---

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

$$\frac{-9}{-4x-8} + -2 = \frac{5}{-12x-24}$$

A. $x_1 \in [-1.67, 1.33]$ and $x_2 \in [3.33, 5.33]$

B. $x \in [-0.67, 1.33]$

C. $x \in [3.33, 4.33]$

D. $x_1 \in [-1.67, 1.33]$ and $x_2 \in [-2.25, 0.75]$

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

---

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

$$\frac{-3x}{6x-4} + \frac{-2x^2}{-18x^2+54x-28} = \frac{2}{-3x+7}$$

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

B. $x_1 \in [-0.51, 1.73]$ and $x_2 \in [-2.4, 1.1]$

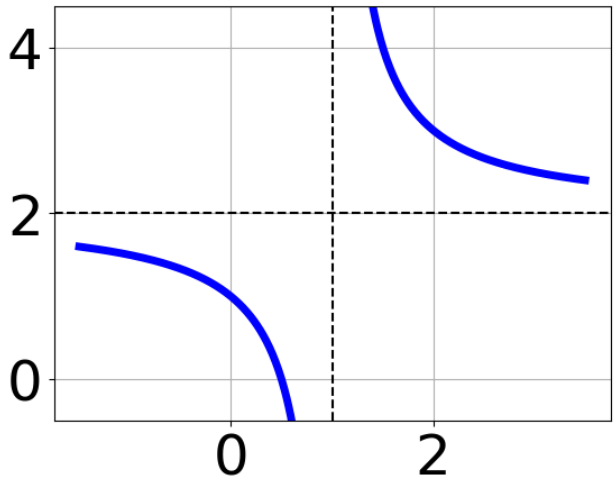
C. $x_1 \in [-0.51, 1.73]$ and $x_2 \in [3.4, 6.2]$

D. $x \in [0.55, 2.44]$

E. $x \in [3.75, 6.76]$

---

8. Choose the equation of the function graphed below.



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

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

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

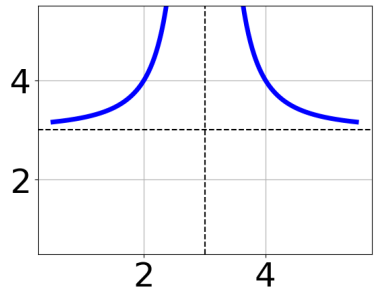
D. $f(x) = \dfrac{1}{x+1} - 4$

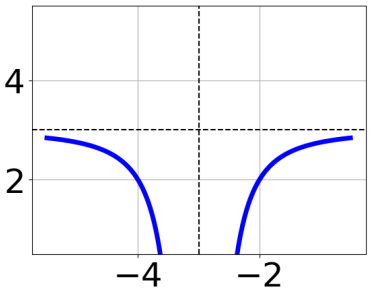
E. None of the above

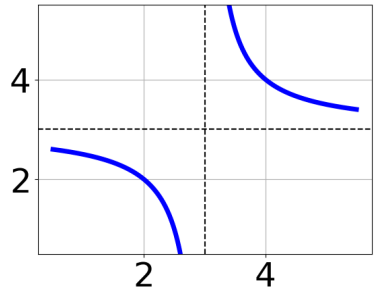
---

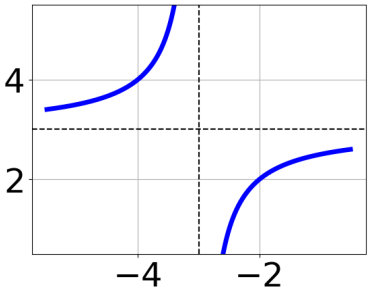
9. Choose the graph of the equation below.

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

A. 

C. 

B. 

D. 

E. None of the above.

---

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

$$\frac{3x}{3x+6} + \frac{-4x^2}{-6x^2-33x-42} = \frac{5}{-2x-7}$$

A. $x \in [-1.48, -0.88]$

B. $x \in [-3.77, -3.24]$

C. $x_1 \in [-2.42, -1.94]$ and $x_2 \in [-2.39, -1.78]$

D. $x_1 \in [-2.42, -1.94]$ and $x_2 \in [-1.65, -1.12]$

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