1. Determine the domain of the function below.

$$f(x) = \frac{5}{30x^2 + 10x - 20}$$

A. All Real numbers except $x = a$, where $a \in [-1.2, 0.2]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.2, 0.2]$ and $b \in [-0.6, 1.1]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-25.3, -23.6]$ and $b \in [22.9, 24.3]$

D. All Real numbers except $x = a$, where $a \in [-25.3, -23.6]$

E. All Real numbers.

---

2. Determine the domain of the function below.

$$f(x) = \frac{4}{15x^2 - 43x + 30}$$

A. All Real numbers.

B. All Real numbers except $x = a$ and $x = b$, where $a \in [0.77, 1.29]$ and $b \in [1.65, 1.95]$

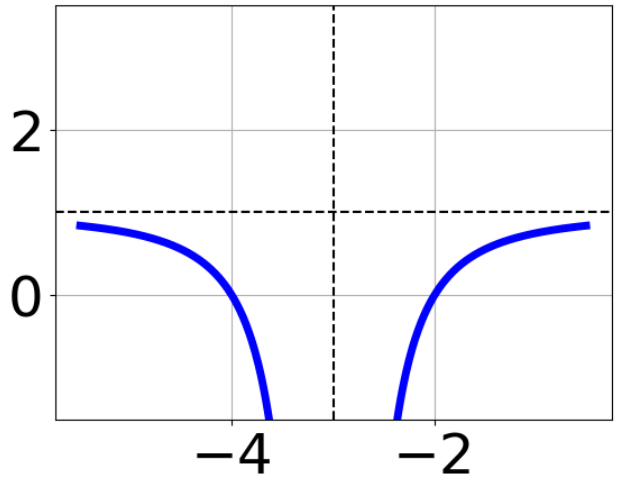
C. All Real numbers except $x = a$, where $a \in [14.66, 15.62]$

D. All Real numbers except $x = a$, where $a \in [0.77, 1.29]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [14.66, 15.62]$ and $b \in [29.92, 30.14]$

---

3. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

---

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

$$\frac{-5x}{2x+5} + \frac{-6x^2}{4x^2-4x-35} = \frac{-3}{2x-7}$$

A. $x_1 \in [-1.13, -0.11]$ and $x_2 \in [-2.11, 3.89]$

B. $x_1 \in [-1.13, -0.11]$ and $x_2 \in [-2.5, -1.5]$

C. $x \in [3.11, 3.91]$

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

E. $x \in [2.58, 3.27]$

---

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

$$\frac{-48}{48x+96}+1=\frac{-48}{48x+96}$$

A. $x \in [-2.0, -1.0]$

B. $x_1 \in [-2, 0]$ and $x_2 \in [-3, 0]$

C. $x \in [2, 5]$

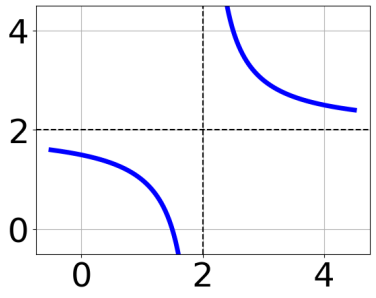
D. $x_1 \in [-2, 0]$ and $x_2 \in [1, 3]$

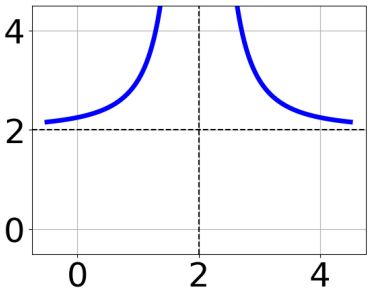
E. All solutions lead to invalid or complex values in the equation.

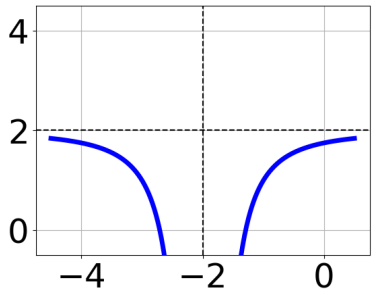
---

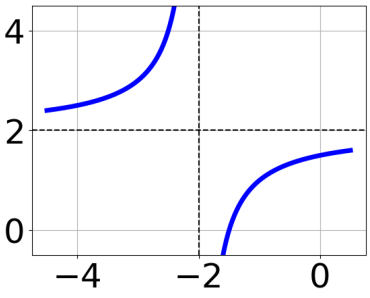
6. Choose the graph of the equation below.

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

A.


C.


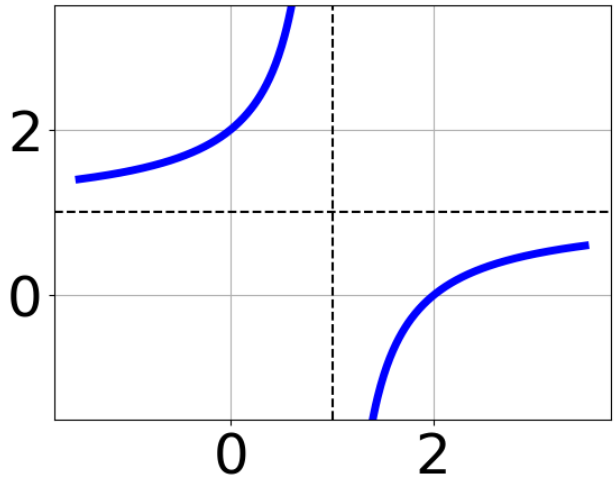
B.


D.


E. None of the above.

---

7. Choose the equation of the function graphed below.



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

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

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

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

E. None of the above

---

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

$$\frac{-3x}{-7x+7} + \frac{-2x^2}{-42x^2+77x-35} = \frac{7}{6x-5}$$

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

B. $x \in [1.6, 2.09]$

C. $x_1 \in [1.02, 1.36]$ and $x_2 \in [-0.7, 1.8]$

D. $x_1 \in [1.02, 1.36]$ and $x_2 \in [1.6, 2]$

E. $x \in [0.72, 0.94]$

---

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

$$\frac{4}{-7x-9} + -7 = \frac{-5}{-63x-81}$$

A. $x \in [-1.38, 0.62]$

B. $x \in [1.13, 1.22]$

C. $x_1 \in [-1.49, -1.38]$ and $x_2 \in [-2.38, 0.62]$

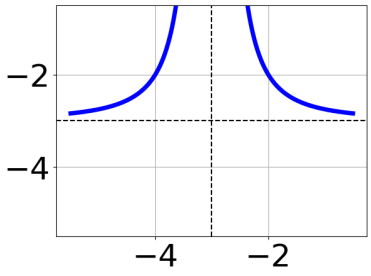
D. $x_1 \in [-1.39, -1.28]$ and $x_2 \in [0.19, 4.19]$

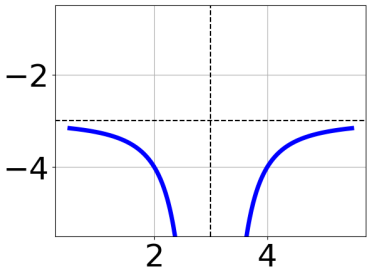
E. All solutions lead to invalid or complex values in the equation.

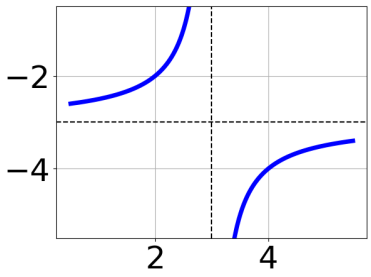
---

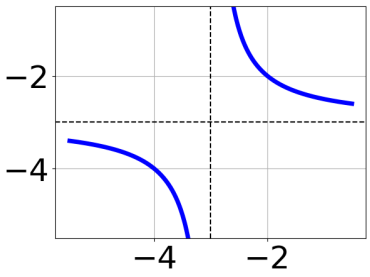
10. Choose the graph of the equation below.

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

A.


C.


B.


D.


E. None of the above.
