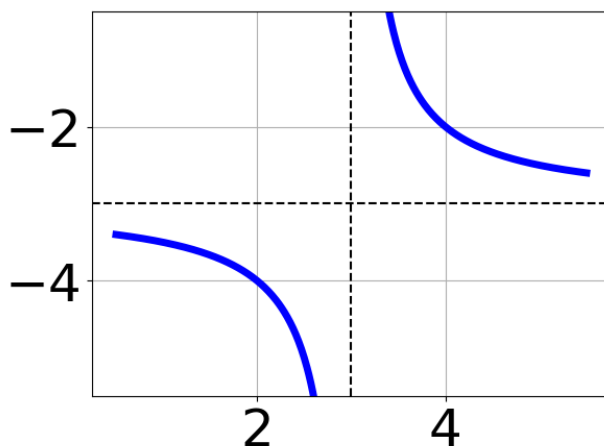1. Determine the domain of the function below.

$$f(x) = \frac{5}{18x^2 + 33x + 12}$$

  A. All Real numbers.

  B. All Real numbers except $x = a$ and $x = b$, where $a \in [-18.5, -17.4]$ and $b \in [-13.5, -11.5]$

  C. All Real numbers except $x = a$ and $x = b$, where $a \in [-2.2, -0.6]$ and $b \in [-0.7, 0]$

  D. All Real numbers except $x = a$, where $a \in [-18.5, -17.4]$

  E. All Real numbers except $x = a$, where $a \in [-2.2, -0.6]$

2. Choose the equation of the function graphed below.

  A. $f(x) = \dfrac{1}{(x-3)^2} - 5$

  B. $f(x) = \dfrac{-1}{(x+3)^2} - 5$

  C. $f(x) = \dfrac{-1}{x+3} - 5$

  D. $f(x) = \dfrac{1}{x-3} - 5$

  E. None of the above

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

$$\frac{-5}{6x+4} + 9 = \frac{-7}{-36x - 24}$$

A. $x \in [-1.55, 0.45]$

B. $x_1 \in [-0.95, -0.7]$ and $x_2 \in [-1.3, -0.3]$

C. $x_1 \in [-0.56, -0.46]$ and $x_2 \in [0.3, 1]$

D. $x \in [0.72, 0.9]$

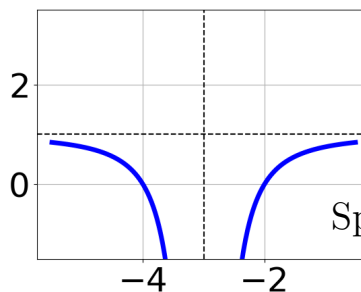E. All solutions lead to invalid or complex values in the equation.

4. Determine the domain of the function below.
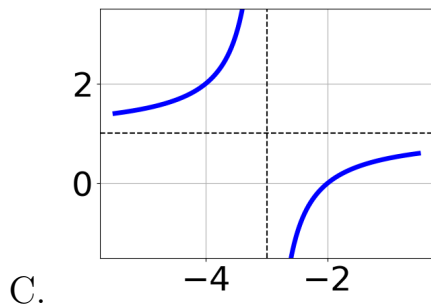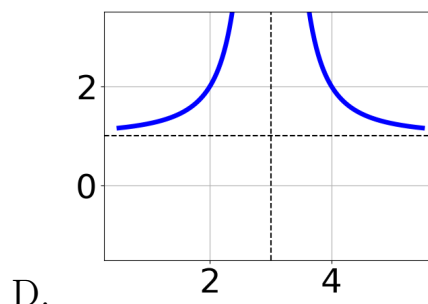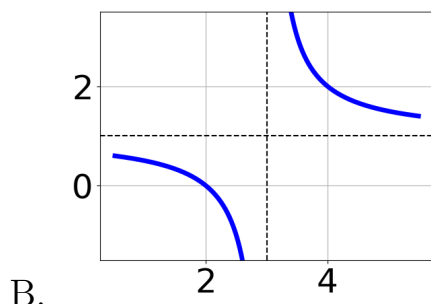
$$f(x) = \frac{6}{30x^2 - 50x + 20}$$

A. All Real numbers except $x = a$, where $a \in [23.84, 24.07]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [0.43, 0.98]$ and $b \in [0.99, 1.54]$

C. All Real numbers except $x = a$, where $a \in [0.43, 0.98]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [23.84, 24.07]$ and $b \in [24.95, 25.17]$

E. All Real numbers.

5. Choose the graph of the equation below.

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

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.

$$\frac{2}{2x+2} + -3 = \frac{-7}{-10x-10}$$

A. $x_1 \in [-1.9, 0.1]$ and $x_2 \in [0.3, 1]$

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

C. $x \in [0.1, 3.1]$

D. $x \in [-0.9, 1.1]$

E. $x_1 \in [-1.9, 0.1]$ and $x_2 \in [0.9, 1.8]$

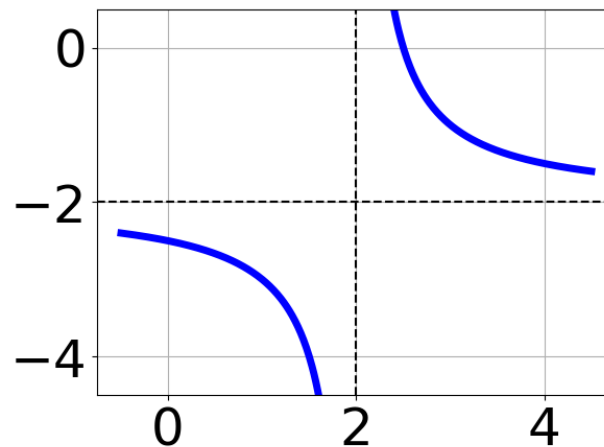
7. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-3x}{-7x+6} + \frac{-7x^2}{42x^2 - 50x + 12} = \frac{4}{-6x+2}$$

A. $x_1 \in [0.65, 0.83]$ and $x_2 \in [-5.4, -0.2]$

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

C. $x \in [0.28, 0.73]$

D. $x \in [-2.87, -2.56]$

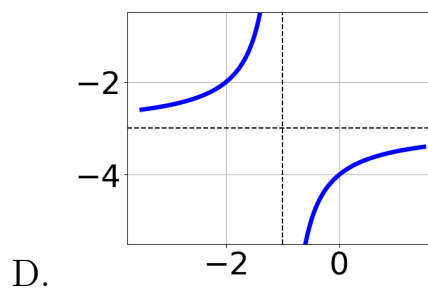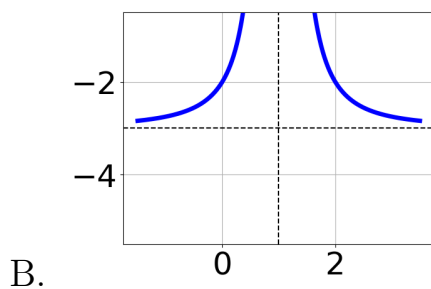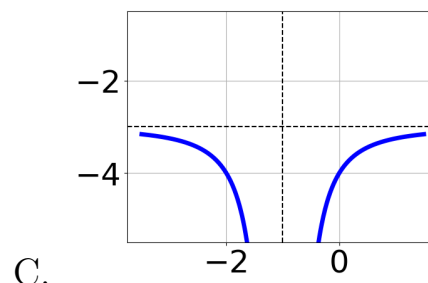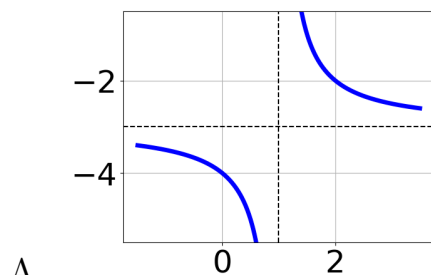E. $x_1 \in [0.65, 0.83]$ and $x_2 \in [-0.8, 4.4]$

---

8. Choose the equation of the function graphed below.

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

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

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

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

E. None of the above

---

9. Choose the graph of the equation below.

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

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.

$$\frac{-2x}{6x+6} + \frac{-3x^2}{-42x^2 - 60x - 18} = \frac{7}{-7x - 3}$$

A. $x_1 \in [-1.06, -0.52]$ and $x_2 \in [3.18, 10.18]$

B. $x \in [4.09, 4.55]$

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

D. $x_1 \in [-1.06, -0.52]$ and $x_2 \in [-4, 4]$

E. $x \in [-0.59, -0.39]$