1. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x+1) - 5$$

A. $(a, \infty), a \in [-2.6, 0.7]$

B. $(-\infty, a), a \in [0.7, 2.5]$

C. $(-\infty, a], a \in [2.9, 8.2]$

D. $[a, \infty), a \in [-7.8, -3.6]$

E. $(-\infty, \infty)$

---

2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-2x+5) + 6 = 3$$

A. $x \in [-61, -58]$

B. $x \in [1.5, 3.5]$

C. $x \in [123, 134]$

D. $x \in [116, 121]$

E. There is no Real solution to the equation.

---

3. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-3x+7) + 5 = 2$$

A. $x \in [-4.2, -1.6]$

B. $x \in [1.2, 5.3]$

C. $x \in [-26.3, -22.1]$

D. $x \in [-31.8, -28.5]$

E. There is no Real solution to the equation.

---

4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+9} + 7$$

A. $(a, \infty), a \in [-7, -5]$

B. $(-\infty, a], a \in [4, 9]$

C. $[a, \infty), a \in [-7, -5]$

D. $(-\infty, a), a \in [4, 9]$

E. $(-\infty, \infty)$

---

5. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x-1} + 9$$

A. $[a, \infty), a \in [9, 10]$

B. $(-\infty, a), a \in [-9, -8]$

C. $(a, \infty), a \in [9, 10]$

D. $(-\infty, a], a \in [-9, -8]$

E. $(-\infty, \infty)$

---

6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$4^{-4x-5} = \left(\frac{1}{49}\right)^{2x+4}$$

A. $x \in [-3.86, -2.86]$

B. $x \in [-3.5, 0.5]$

C. $x \in [2.02, 6.02]$

D. $x \in [0.44, 3.44]$

E. There is no Real solution to the equation.

---

7. Solve the equation for x and choose the interval that contains x (if it exists).

$$18 = \ln \sqrt[6]{\frac{19}{e^{7x}}}$$

A. $x \in [-6.72, -3.72]$

B. $x \in [-3.9, 1.1]$

C. $x \in [-16.01, -13.01]$

D. There is no Real solution to the equation.

E. None of the above.

---

8. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x+2) - 7$$

A. $(-\infty, a), a \in [5, 12]$

B. $[a, \infty), a \in [-6, 1]$

C. $[a, \infty), a \in [2, 4]$

D. $(-\infty, a), a \in [-13, -3]$

E. $(-\infty, \infty)$

---

9. Solve the equation for x and choose the interval that contains x (if it exists).

$$20 = \sqrt[7]{\frac{17}{e^{6x}}}$$

A. $x \in [-23.81, -22.81]$

B. $x \in [-2.53, 0.47]$

C. $x \in [-8.02, -2.02]$

D. There is no Real solution to the equation.

E. None of the above.

10. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{5x-2} = \left(\frac{1}{9}\right)^{2x+3}$$

A. $x \in [0.67, 4.67]$

B. $x \in [-1.74, -0.74]$

C. $x \in [-0.36, 1.64]$

D. $x \in [-1.66, 0.34]$

E. There is no Real solution to the equation.