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

$$f(x) = -\log_2(x - 6) + 3$$

   A. $(-\infty, a), a \in [-0.1, 3.5]$

   B. $[a, \infty), a \in [4, 7]$

   C. $[a, \infty), a \in [-7.3, -5.1]$

   D. $(-\infty, a), a \in [-3.7, -2.6]$

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

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

$$3^{5x+4} = 49^{4x+5}$$

   A. $x \in [14.9, 16.7]$

   B. $x \in [-0.4, 0.6]$

   C. $x \in [0.9, 2.3]$

   D. $x \in [-2.7, -1]$

   E. There is no Real solution to the equation.

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

$$19 = \sqrt[4]{\frac{5}{e^{3x}}}$$

   A. $x \in [-2.43, 2.57]$

   B. $x \in [-3.39, -2.39]$

   C. $x \in [-25.87, -24.87]$

   D. There is no Real solution to the equation.

   E. None of the above.

4. Which of the following intervals describes the Domain of the function below?
$$f(x) = -e^{x+4} - 2$$

  A. $(-\infty, a], a \in [-3, 1]$

  B. $(a, \infty), a \in [2, 7]$

  C. $[a, \infty), a \in [2, 7]$

  D. $(-\infty, a), a \in [-3, 1]$

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

5. Which of the following intervals describes the Domain of the function below?
$$f(x) = -\log_2 (x + 7) + 7$$

  A. $(-\infty, a], a \in [-15, -4]$

  B. $[a, \infty), a \in [1, 9]$

  C. $(-\infty, a), a \in [1, 9]$

  D. $(a, \infty), a \in [-15, -4]$

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

6. Solve the equation for x and choose the interval that contains x (if it exists).
$$9 = \sqrt[6]{\frac{7}{e^{4x}}}$$

  A. $x \in [-6.81, -1.81]$

  B. $x \in [-16.99, -12.99]$

  C. $x \in [-1.61, 2.39]$

  D. There is no Real solution to the equation.

  E. None of the above.

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

$$\log_4 (4x + 6) + 5 = 3$$

A. $x \in [2.1, 4.2]$

B. $x \in [-3.9, 1.6]$

C. $x \in [4.3, 6.3]$

D. $x \in [12.1, 16.8]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x+3} - 6$$

A. $(-\infty, a], a \in [-14, -4]$

B. $(a, \infty), a \in [0, 7]$

C. $(-\infty, a), a \in [-14, -4]$

D. $[a, \infty), a \in [0, 7]$

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

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

$$2^{5x-4} = 9^{3x+5}$$

A. $x \in [-3.7, -2.5]$

B. $x \in [1.6, 5.6]$

C. $x \in [5.9, 7.9]$

D. $x \in [-4.9, -4.3]$

E. There is no Real solution to the equation.

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

$$\log_4 (4x + 7) + 4 = 3$$

A. $x \in [14.14, 14.61]$

B. $x \in [-1.88, -1.64]$

C. $x \in [-1.65, -1.44]$

D. $x \in [1.85, 2.21]$

E. There is no Real solution to the equation.