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

$$f(x) = e^{x-4} + 6$$

A. $(-\infty, a), a \in [-10, 1]$

B. $[a, \infty), a \in [-1, 7]$

C. $(-\infty, a], a \in [-10, 1]$

D. $(a, \infty), a \in [-1, 7]$

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

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

$$6 = \ln \sqrt[5]{\frac{18}{e^{8x}}}$$

A. $x \in [-1.59, -1.31]$

B. $x \in [-3.57, -3.05]$

C. $x \in [-1.17, -0.82]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$4^{3x-5} = \left(\frac{1}{27}\right)^{2x+4}$$

A. $x \in [-6.9, -3.8]$

B. $x \in [-2.8, -0.1]$

C. $x \in [8.6, 9.9]$

D. $x \in [0.7, 3.3]$

E. There is no Real solution to the equation.

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

$$4^{2x+5} = 49^{3x-5}$$

A. $x \in [-0.88, 2.12]$

B. $x \in [8, 14]$

C. $x \in [22.39, 29.39]$

D. $x \in [1.96, 5.96]$

E. There is no Real solution to the equation.

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

$$\log_5(-4x + 5) + 5 = 2$$

A. $x \in [-3.75, 4.25]$

B. $x \in [61, 68]$

C. $x \in [-11, -2]$

D. $x \in [59.5, 60.5]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x+7} - 4$$

A. $(-\infty, a), a \in [-8, 2]$

B. $(a, \infty), a \in [2, 8]$

C. $(-\infty, a], a \in [-8, 2]$

D. $[a, \infty), a \in [2, 8]$

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

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

$$f(x) = \log_2(x-6) - 1$$

A. $(-\infty, a), a \in [-1.8, -0.2]$

B. $[a, \infty), a \in [4.3, 8]$

C. $[a, \infty), a \in [-9.6, -3.2]$

D. $(-\infty, a), a \in [0.1, 3.8]$

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

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

$$\log_5(3x+7) + 5 = 3$$

A. $x \in [-10.33, -5.33]$

B. $x \in [39.33, 40.33]$

C. $x \in [-17, -11]$

D. $x \in [-5.32, 1.68]$

E. There is no Real solution to the equation.

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

$$13 = \sqrt[5]{\frac{18}{e^{9x}}}$$

A. $x \in [0.8, 1.7]$

B. $x \in [-8.7, -7.1]$

C. $x \in [-1, 0.8]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -\log_2(x-2) - 5$$

A. $[a, \infty), a \in [-0.4, 2.5]$

B. $(-\infty, a), a \in [4.1, 7.1]$

C. $(-\infty, a), a \in [-7.7, -3.9]$

D. $[a, \infty), a \in [-3.4, -1.1]$

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