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

$$f(x) = -\log_2(x+5) + 9$$

A. $[a, \infty), a \in [-5, -4]$

B. $(-\infty, a), a \in [-10, -6]$

C. $[a, \infty), a \in [5, 6]$

D. $(-\infty, a), a \in [8, 13]$

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

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

$$8 = \sqrt[6]{\frac{27}{e^{5x}}}$$

A. $x \in [-2.7, -1.3]$

B. $x \in [-1.2, 0.4]$

C. $x \in [-12.2, -9.4]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = e^{x-7} - 8$$

A. $(-\infty, a], a \in [5, 11]$

B. $(-\infty, a), a \in [5, 11]$

C. $[a, \infty), a \in [-9, -6]$

D. $(a, \infty), a \in [-9, -6]$

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

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

$$3^{-3x+5} = \left(\frac{1}{343}\right)^{-4x-4}$$

A. $x \in [17.71, 18.2]$

B. $x \in [0.13, 0.64]$

C. $x \in [-9.49, -7.92]$

D. $x \in [-0.88, 0.05]$

E. There is no Real solution to the equation.

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

$$f(x) = \log_2(x - 5) + 6$$

A. $[a, \infty), a \in [5.33, 6.35]$

B. $(a, \infty), a \in [4.83, 5.97]$

C. $(-\infty, a), a \in [-5.24, -4.83]$

D. $(-\infty, a], a \in [-7.22, -5.58]$

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

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

$$24 = \ln \sqrt[3]{\frac{28}{e^{3x}}}$$

A. $x \in [-23.89, -18.89]$

B. $x \in [-18.89, -13.89]$

C. $x \in [-6.29, -2.29]$

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).

$$\log_2(4x+6)+6=2$$

A. $x \in [1.16, 2.8]$

B. $x \in [-2.74, -1.15]$

C. $x \in [4.15, 6.6]$

D. $x \in [-0.58, -0.22]$

E. There is no Real solution to the equation.

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

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

A. $x \in [2.1, 5.1]$

B. $x \in [-7.9, -6.2]$

C. $x \in [-1.4, 1.5]$

D. $x \in [-24.2, -21]$

E. There is no Real solution to the equation.

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

$$\log_4(2x+7)+4=2$$

A. $x \in [-11.47, -2.47]$

B. $x \in [3.5, 7.5]$

C. $x \in [7.5, 12.5]$

D. $x \in [3.5, 7.5]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x+9} - 5$$

A. $[a, \infty), a \in [4, 8]$

B. $(-\infty, a], a \in [-8, -3]$

C. $(-\infty, a), a \in [-8, -3]$

D. $(a, \infty), a \in [4, 8]$

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