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

$$f(x) = -\log_2(x+9) - 6$$

A. $[a, \infty), a \in [-11.3, -7.6]$

B. $(-\infty, a), a \in [-8.6, -4.1]$

C. $[a, \infty), a \in [8.1, 9.6]$

D. $(-\infty, a), a \in [5, 7.7]$

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

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

$$f(x) = -e^{x-3} + 9$$

A. $(-\infty, a), a \in [4, 11]$

B. $[a, \infty), a \in [-17, -7]$

C. $(a, \infty), a \in [-17, -7]$

D. $(-\infty, a], a \in [4, 11]$

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

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

$$5^{4x-2} = \left(\frac{1}{9}\right)^{-3x+5}$$

A. $x \in [-46.48, -38.48]$

B. $x \in [48.46, 53.46]$

C. $x \in [0, 3]$

D. $x \in [-1.11, 0.89]$

E. There is no Real solution to the equation.

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

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

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

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

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

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

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

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

$$19 = \sqrt[7]{\frac{17}{e^{5x}}}$$

A. $x \in [-2.61, 0.39]$

B. $x \in [-29.17, -26.17]$

C. $x \in [2.56, 4.56]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -\log_2(x - 3) - 5$$

A. $[a, \infty), a \in [-5.15, -4.66]$

B. $(a, \infty), a \in [2.7, 3.27]$

C. $(-\infty, a), a \in [-4.67, -2.29]$

D. $(-\infty, a], a \in [4.82, 5.22]$

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

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

$$18 = \sqrt[3]{\frac{30}{e^{5x}}}$$

A. $x \in [-0.76, 0.08]$

B. $x \in [0.31, 2.69]$

C. $x \in [-12.33, -10.36]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$5^{-3x+3} = \left(\frac{1}{49}\right)^{-2x-3}$$

A. $x \in [-0.4, 2.2]$

B. $x \in [-1.1, -0.1]$

C. $x \in [-8.7, -6.1]$

D. $x \in [5.6, 6.7]$

E. There is no Real solution to the equation.

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

$$\log_5(4x + 5) + 4 = 3$$

A. $x \in [-1.81, -1.28]$

B. $x \in [29.85, 30.19]$

C. $x \in [-1.32, -1.04]$

D. $x \in [0.71, 1.13]$

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).

$$\log_3(-2x+7)+5=3$$

A. $x \in [-12,-6]$

B. $x \in [2.44, 6.44]$

C. $x \in [4.5, 14.5]$

D. $x \in [-0.5, 2.5]$

E. There is no Real solution to the equation.