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

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

A. $(-\infty, a), a \in [-2.2, 0.6]$

B. $[a, \infty), a \in [-6.5, -5.5]$

C. $[a, \infty), a \in [3.7, 7.6]$

D. $(-\infty, a), a \in [0.5, 1.1]$

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

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

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

A. $(-\infty, a], a \in [5, 14]$

B. $(a, \infty), a \in [-11, -3]$

C. $(-\infty, a), a \in [5, 14]$

D. $[a, \infty), a \in [-11, -3]$

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

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

$$5^{-3x-5} = 27^{-2x+5}$$

A. $x \in [-12, -7]$

B. $x \in [10.91, 14.91]$

C. $x \in [-25.53, -20.53]$

D. $x \in [4.67, 6.67]$

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?

$$f(x) = -e^{x-8} - 5$$

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

B. $(a, \infty), a \in [4, 10]$

C. $(-\infty, a], a \in [-8, -4]$

D. $[a, \infty), a \in [4, 10]$

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

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

$$18 = \sqrt[3]{\frac{9}{e^{9x}}}$$

A. $x \in [0.3, 0.89]$

B. $x \in [-0.67, -0.26]$

C. $x \in [-6.75, -5.82]$

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?

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

A. $(-\infty, a), a \in [3.8, 7.1]$

B. $(-\infty, a], a \in [1.5, 4.9]$

C. $(a, \infty), a \in [-6.6, -4.1]$

D. $[a, \infty), a \in [-4.5, -1.2]$

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

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

$$18 = \sqrt[5]{\frac{20}{e^{9x}}}$$

A. $x \in [-10.88, -10.24]$

B. $x \in [-0.91, -0.06]$

C. $x \in [0.74, 1.96]$

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).

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

A. $x \in [-8.2, -7.4]$

B. $x \in [10.7, 12.3]$

C. $x \in [-0.2, 2.9]$

D. $x \in [-1.2, 0.1]$

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).

$$\log_3(4x + 8) + 4 = 2$$

A. $x \in [-4, -3.79]$

B. $x \in [-0.49, 0.08]$

C. $x \in [-1.98, -1.7]$

D. $x \in [0.23, 0.31]$

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).

$$\log_4(-2x+5)+6=3$$

A. $x \in [-43, -42]$

B. $x \in [-30.5, -23.5]$

C. $x \in [0.49, 3.49]$

D. $x \in [-42, -36]$

E. There is no Real solution to the equation.