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

$$f(x) = -\log_2(x+4) + 3$$

A. $(-\infty, a), a \in [2.59, 3.08]$

B. $(-\infty, a), a \in [-3.26, -2.78]$

C. $[a, \infty), a \in [-4.3, -3.91]$

D. $[a, \infty), a \in [3.58, 4.29]$

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

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

$$3^{-4x+2} = \left(\frac{1}{25}\right)^{2x+5}$$

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

B. $x \in [-0.8, 0.7]$

C. $x \in [2.4, 4.2]$

D. $x \in [-9.4, -8.5]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x+4} + 9$$

A. $[a, \infty), a \in [3, 17]$

B. $(-\infty, a], a \in [-10, -8]$

C. $(-\infty, a), a \in [-10, -8]$

D. $(a, \infty), a \in [3, 17]$

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

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

$$\log_3(-2x+5)+4=3$$

A. $x \in [-2.2, -1.3]$

B. $x \in [-12.9, -10.2]$

C. $x \in [2.9, 3.2]$

D. $x \in [2.2, 2.9]$

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?

$$f(x) = e^{x-4} + 3$$

A. $[a, \infty), a \in [-9, 0]$

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

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

D. $(a, \infty), a \in [-9, 0]$

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

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

$$17 = \ln \sqrt[4]{\frac{18}{e^{6x}}}$$

A. $x \in [-2.4, -0.4]$

B. $x \in [-5.4, -5]$

C. $x \in [9.9, 11.1]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_4(3x+6)+4=2$$

A. $x \in [7.33, 10.33]$

B. $x \in [3.33, 4.33]$

C. $x \in [-4.98, 1.02]$

D. $x \in [3.33, 4.33]$

E. There is no Real solution to the equation.

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

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

A. $(-\infty, a), a \in [-5.47, -4.72]$

B. $(-\infty, a), a \in [4.87, 5.13]$

C. $[a, \infty), a \in [-6.12, -5.44]$

D. $[a, \infty), a \in [5.64, 6.34]$

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

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

$$2^{-5x-3} = \left(\frac{1}{343}\right)^{-4x+4}$$

A. $x \in [-7.74, -6.68]$

B. $x \in [-1.03, 0.22]$

C. $x \in [-0.01, 1.2]$

D. $x \in [20.67, 21.65]$

E. There is no Real solution to the equation.

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

$$14 = \ln \sqrt[4]{\frac{25}{e^{9x}}}$$

A. $x \in [4.4, 6.3]$

B. $x \in [-1.6, 0.1]$

C. $x \in [-3.2, -2.3]$

D. There is no Real solution to the equation.

E. None of the above.