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

$$f(x) = -e^{x+7} + 3$$

A. $(-\infty, a], a \in [-1, 5]$

B. $(a, \infty), a \in [-4, 0]$

C. $(-\infty, a), a \in [-1, 5]$

D. $[a, \infty), a \in [-4, 0]$

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

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

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

A. $x \in [-3.5, -0.5]$

B. $x \in [0.8, 6.2]$

C. $x \in [-3.5, -0.5]$

D. $x \in [-6.3, -3.4]$

E. There is no Real solution to the equation.

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

$$5^{5x+5} = 9^{3x-3}$$

A. $x \in [-11.6, -9.3]$

B. $x \in [-5.6, -4.6]$

C. $x \in [-5.1, -2.9]$

D. $x \in [-8.7, -6.5]$

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?

$$f(x) = \log_2(x - 8) + 5$$

A. $[a, \infty), a \in [-8.9, -5.9]$

B. $(-\infty, a), a \in [2.6, 7.6]$

C. $(-\infty, a), a \in [-5.1, -4.7]$

D. $[a, \infty), a \in [7.1, 10.2]$

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

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

$$15 = \sqrt[6]{\frac{10}{e^{5x}}}$$

A. $x \in [-19, -14]$

B. $x \in [-1, 2]$

C. $x \in [-4, -2]$

D. There is no Real solution to the equation.

E. None of the above.

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