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

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

A. $x \in [-5.6, -3.6]$

B. $x \in [-0.9, 0.6]$

C. $x \in [0.4, 3.5]$

D. $x \in [-17.3, -16.7]$

E. There is no Real solution to the equation.

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

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

A. $x \in [-4, 2.6]$

B. $x \in [0.2, 3.6]$

C. $x \in [6.1, 9.2]$

D. $x \in [16.9, 19.8]$

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?

$$f(x) = e^{x-1} - 3$$

A. $(-\infty, a], a \in [-2, 13]$

B. $[a, \infty), a \in [-6, 2]$

C. $(a, \infty), a \in [-6, 2]$

D. $(-\infty, a), a \in [-2, 13]$

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

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

$$21 = \sqrt[7]{\frac{20}{e^{4x}}}$$

A. $x \in [2, 7]$

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

C. $x \in [-38, -35]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -\log_2(x + 2) + 1$$

A. $[a, \infty), a \in [0.56, 1.66]$

B. $(-\infty, a), a \in [1.54, 2.66]$

C. $(a, \infty), a \in [-2.33, -1.4]$

D. $(-\infty, a], a \in [-1.15, -0.87]$

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