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

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

A. $(a, \infty), a \in [-9.4, -4.9]$

B. $[a, \infty), a \in [-2.6, 0.1]$

C. $(-\infty, a), a \in [3.2, 6.8]$

D. $(-\infty, a], a \in [0.9, 2]$

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

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

$$\log_3(3x+7) + 4 = 2$$

A. $x \in [-0.48, 0.66]$

B. $x \in [-5.15, -4.67]$

C. $x \in [-2.57, -2.24]$

D. $x \in [0.51, 1.3]$

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).

$$\log_2(2x+7) + 4 = 3$$

A. $x \in [-3.12, -2.51]$

B. $x \in [3.82, 4.16]$

C. $x \in [0.27, 0.56]$

D. $x \in [-3.33, -3.12]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x-9} + 6$$

A. $(-\infty, a], a \in [4, 7]$

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

C. $(-\infty, a), a \in [4, 7]$

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

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

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

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

A. $[a, \infty), a \in [-7, -5]$

B. $(-\infty, a), a \in [3, 10]$

C. $(a, \infty), a \in [-7, -5]$

D. $(-\infty, a], a \in [3, 10]$

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

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

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

A. $x \in [-3.1, -2.31]$

B. $x \in [-1.07, -0.29]$

C. $x \in [0.16, 0.82]$

D. $x \in [1.43, 2.72]$

E. There is no Real solution to the equation.

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

$$17 = \sqrt[3]{\frac{7}{e^{4x}}}$$

A. $x \in [0.54, 2.28]$

B. $x \in [-13.32, -12.78]$

C. $x \in [-1.45, -0.22]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -\log_2(x - 2) - 7$$

A. $(-\infty, a), a \in [-11.7, -6.4]$

B. $(-\infty, a), a \in [6.7, 9]$

C. $[a, \infty), a \in [1.6, 2.4]$

D. $[a, \infty), a \in [-2.6, -0.9]$

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

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

$$21 = \sqrt[5]{\frac{22}{e^{5x}}}$$

A. $x \in [-22, -19.7]$

B. $x \in [-2.6, -0.6]$

C. $x \in [-0.8, 0.5]$

D. There is no Real solution to the equation.

E. None of the above.

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

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

A. $x \in [-2.36, -0.86]$

B. $x \in [-0.93, 0.54]$

C. $x \in [23.6, 24.39]$

D. $x \in [0.08, 1.8]$

E. There is no Real solution to the equation.