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

$$f(x) = -\log_2(x+3) - 1$$

A. $[a, \infty), a \in [2.2, 3.7]$

B. $[a, \infty), a \in [-3.65, -2.38]$

C. $(-\infty, a), a \in [-1.42, -0.39]$

D. $(-\infty, a), a \in [0.51, 1.74]$

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

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

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

A. $(-\infty, a], a \in [-0.5, 2.1]$

B. $(-\infty, a), a \in [-0.5, 2.1]$

C. $[a, \infty), a \in [-1.2, 0]$

D. $(a, \infty), a \in [-1.2, 0]$

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

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

$$3^{5x-3} = 64^{3x+4}$$

A. $x \in [9.6, 10.8]$

B. $x \in [3.2, 4.4]$

C. $x \in [-3.3, -2.7]$

D. $x \in [-1.1, 0.3]$

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?

$$f(x) = -\log_2(x-9) - 6$$

A. $[a, \infty), a \in [-9.7, -8.3]$

B. $(-\infty, a), a \in [3.3, 8.4]$

C. $[a, \infty), a \in [8.4, 10.4]$

D. $(-\infty, a), a \in [-7.4, -5.4]$

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

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

$$25 = \sqrt[7]{\frac{16}{e^{3x}}}$$

A. $x \in [-8.59, -5.59]$

B. $x \in [-2.22, -0.22]$

C. $x \in [-60.26, -56.26]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_3(-4x+8) + 5 = 2$$

A. $x \in [8.55, 8.88]$

B. $x \in [-0.77, 0.4]$

C. $x \in [0.96, 3]$

D. $x \in [3.22, 5.46]$

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).

$$12 = \ln \sqrt[6]{\frac{10}{e^{9x}}}$$

A. $x \in [-2.5, -2]$

B. $x \in [-2.1, -1.5]$

C. $x \in [-8.5, -6.5]$

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?

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

A. $(-\infty, a), a \in [7, 8]$

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

C. $(-\infty, a], a \in [7, 8]$

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

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

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

$$4^{-4x-3} = 125^{-3x-5}$$

A. $x \in [18.98, 22.98]$

B. $x \in [-2.24, -1.24]$

C. $x \in [1, 5]$

D. $x \in [-1.22, 1.78]$

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 the solution (if it exists).

$$\log_5(-4x+6)+5=2$$

A. $x \in [-9.75, 1.25]$

B. $x \in [61.25, 69.25]$

C. $x \in [-0.5, 2.5]$

D. $x \in [57.25, 60.25]$

E. There is no Real solution to the equation.