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

$$f(x) = -\log_2(x+1) - 8$$

A. $(-\infty, a], a \in [7.34, 9.69]$

B. $(-\infty, a), a \in [0.12, 1.91]$

C. $[a, \infty), a \in [-8.29, -7.01]$

D. $(a, \infty), a \in [-1.93, -0.7]$

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

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

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

A. $x \in [-16.7, -14.6]$

B. $x \in [-1, 0.4]$

C. $x \in [1.1, 3.1]$

D. $x \in [-1.9, -0.8]$

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).

$$\log_4(-2x+7) + 6 = 3$$

A. $x \in [1.49, 7.49]$

B. $x \in [-33.5, -23.5]$

C. $x \in [-37, -30]$

D. $x \in [-50, -40]$

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?

$$f(x) = e^{x+2} + 2$$

A. $(-\infty, a], a \in [-3.9, 1.9]$

B. $(a, \infty), a \in [-1.2, 2.7]$

C. $[a, \infty), a \in [-1.2, 2.7]$

D. $(-\infty, a), a \in [-3.9, 1.9]$

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

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

$$18 = \sqrt[5]{\frac{20}{e^{3x}}}$$

A. $x \in [-0.93, 0.07]$

B. $x \in [0.82, 7.82]$

C. $x \in [-31, -28]$

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).

$$4^{-3x-3} = 49^{-2x+3}$$

A. $x \in [3.8, 5.1]$

B. $x \in [-7.3, -5.6]$

C. $x \in [-17.7, -12.8]$

D. $x \in [0.7, 3.7]$

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).

$$23 = \sqrt[3]{\frac{5}{e^{9x}}}$$

A. $x \in [-0.7, 0.5]$

B. $x \in [-2.1, -0.7]$

C. $x \in [-8.5, -7.2]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_3(2x + 5) + 5 = 2$$

A. $x \in [-2.7, -1]$

B. $x \in [-17.4, -14.2]$

C. $x \in [-1.4, 3.9]$

D. $x \in [-11.3, -9.8]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x-2} + 4$$

A. $(-\infty, a), a \in [-4, 1]$

B. $(-\infty, a], a \in [-4, 1]$

C. $(a, \infty), a \in [3, 6]$

D. $[a, \infty), a \in [3, 6]$

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

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

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

A. $(-\infty, a], a \in [4.86, 5.8]$

B. $(-\infty, a), a \in [5.98, 6.26]$

C. $[a, \infty), a \in [-5.28, -4.62]$

D. $(a, \infty), a \in [-7.54, -5.54]$

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