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

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

A. $[a, \infty), a \in [0, 3]$

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

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

D. $(-\infty, a), a \in [7, 9]$

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

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

$$24 = \ln \sqrt[4]{\frac{27}{e^{8x}}}$$

A. $x \in [-8.59, -4.59]$

B. $x \in [-3, 2]$

C. $x \in [9.59, 13.59]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -e^{x-6} - 5$$

A. $(-\infty, a), a \in [-13, -3]$

B. $(-\infty, a], a \in [-13, -3]$

C. $[a, \infty), a \in [-1, 8]$

D. $(a, \infty), a \in [-1, 8]$

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

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

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

A. $x \in [-2.45, 0.55]$

B. $x \in [8, 11]$

C. $x \in [0.65, 1.65]$

D. $x \in [-19.89, -18.89]$

E. There is no Real solution to the equation.

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

$$f(x) = \log_2(x-2) - 6$$

A. $(-\infty, a), a \in [-2.8, 1]$

B. $(-\infty, a], a \in [4.1, 6.5]$

C. $(a, \infty), a \in [1.6, 4.3]$

D. $[a, \infty), a \in [-7.4, -5.8]$

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

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

$$7 = \sqrt[3]{\frac{29}{e^{5x}}}$$

A. $x \in [-0.58, -0.47]$

B. $x \in [-5.68, -4.18]$

C. $x \in [-0.31, 1.38]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_3(-4x+6)+5=3$$

A. $x \in [2.89, 5.03]$

B. $x \in [-5.99, -4.27]$

C. $x \in [0.57, 1.73]$

D. $x \in [0.34, 1.29]$

E. There is no Real solution to the equation.

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

$$2^{-5x+2} = \left(\frac{1}{125}\right)^{3x-5}$$

A. $x \in [-0.2, 1.6]$

B. $x \in [-1.2, 0.4]$

C. $x \in [1.5, 2.7]$

D. $x \in [-4.6, -2.5]$

E. There is no Real solution to the equation.

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

$$\log_5(-2x+6)+5=3$$

A. $x \in [16, 21]$

B. $x \in [12, 15]$

C. $x \in [2.98, 5.98]$

D. $x \in [-59.5, -58.5]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x-5} + 2$$

A. $(-\infty, a), a \in [-2.6, -0.8]$

B. $(-\infty, a], a \in [-2.6, -0.8]$

C. $[a, \infty), a \in [1.7, 2.1]$

D. $(a, \infty), a \in [1.7, 2.1]$

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