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

$$f(x) = -\log_2(x+4) - 8$$

A. $(-\infty, a), a \in [5.6, 12.4]$

B. $[a, \infty), a \in [3.1, 7.6]$

C. $(-\infty, a), a \in [-9, -7.3]$

D. $[a, \infty), a \in [-7.6, -2.7]$

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

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

$$3^{4x+2} = 64^{2x+4}$$

A. $x \in [-5.8, -2.9]$

B. $x \in [7, 8.1]$

C. $x \in [-0.6, -0.2]$

D. $x \in [0.1, 2.4]$

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).

$$\log_5(-4x+7) + 5 = 2$$

A. $x \in [57.8, 62]$

B. $x \in [62.2, 63]$

C. $x \in [-9.3, -3.9]$

D. $x \in [1.6, 4]$

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?

$$f(x) = e^{x+8} + 9$$

A. $(-\infty, a), a \in [-12, -4]$

B. $(a, \infty), a \in [6, 11]$

C. $(-\infty, a], a \in [-12, -4]$

D. $[a, \infty), a \in [6, 11]$

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

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

$$19 = \ln \sqrt[6]{\frac{24}{e^{4x}}}$$

A. $x \in [-6.21, -3.21]$

B. $x \in [25.71, 30.71]$

C. $x \in [-10.71, -7.71]$

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).

$$5^{3x+2} = 343^{5x-5}$$

A. $x \in [0.6, 2.2]$

B. $x \in [-0.7, 0.8]$

C. $x \in [2.7, 3.8]$

D. $x \in [14.8, 17.8]$

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).

$$25 = \sqrt[5]{\frac{22}{e^{7x}}}$$

A. $x \in [-18.3, -16.3]$

B. $x \in [-3.86, -0.86]$

C. $x \in [-1.48, 5.52]$

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).

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

A. $x \in [-62.4, -61]$

B. $x \in [-60.2, -56.9]$

C. $x \in [4.2, 6.7]$

D. $x \in [-3, 1.1]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x+1} + 6$$

A. $(a, \infty), a \in [-9, 5]$

B. $[a, \infty), a \in [-9, 5]$

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

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

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

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

$$f(x) = \log_2(x + 9) + 3$$

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

B. $(-\infty, a), a \in [-3, -1]$

C. $(-\infty, a), a \in [3, 5]$

D. $[a, \infty), a \in [8, 13]$

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