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

$$f(x) = \log_2(x+3) + 5$$

A. $(-\infty, a), a \in [4.8, 5.2]$

B. $[a, \infty), a \in [-3.2, -2.3]$

C. $(-\infty, a), a \in [-7.4, -4.7]$

D. $[a, \infty), a \in [0.4, 4.1]$

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

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

$$2^{3x-4} = \left(\frac{1}{25}\right)^{4x+5}$$

A. $x \in [0, 1.3]$

B. $x \in [12.9, 14.8]$

C. $x \in [-2, 0.3]$

D. $x \in [-10.2, -7.2]$

E. There is no Real solution to the equation.

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

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

A. $(-\infty, a), a \in [5, 8]$

B. $(a, \infty), a \in [-7, 2]$

C. $[a, \infty), a \in [-7, 2]$

D. $(-\infty, a], a \in [5, 8]$

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

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

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

A. $x \in [-5.75, -0.75]$

B. $x \in [-1.5, 8.5]$

C. $x \in [62.25, 66.25]$

D. $x \in [57.25, 61.25]$

E. There is no Real solution to the equation.

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

$$f(x) = -e^{x+1} - 5$$

A. $[a, \infty), a \in [1, 10]$

B. $(a, \infty), a \in [1, 10]$

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

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

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

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

$$23 = \sqrt[4]{\frac{17}{e^{8x}}}$$

A. $x \in [-13.5, -11.7]$

B. $x \in [0.9, 1.4]$

C. $x \in [-1.1, 1.2]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_4(-4x+6)+4=3$$

A. $x \in [-15.25, -13.05]$

B. $x \in [-2.49, -1.09]$

C. $x \in [1.19, 1.31]$

D. $x \in [1.32, 4.05]$

E. There is no Real solution to the equation.

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

$$f(x) = -\log_2(x+8) - 7$$

A. $(-\infty, a], a \in [6.85, 7.69]$

B. $(a, \infty), a \in [-8.11, -7.73]$

C. $(-\infty, a), a \in [7.82, 8.09]$

D. $[a, \infty), a \in [-7.15, -6.67]$

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

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

$$2^{-4x-5} = \left(\frac{1}{25}\right)^{-2x+2}$$

A. $x \in [1.4, 1.9]$

B. $x \in [-0.3, 0.8]$

C. $x \in [-5.9, -2.9]$

D. $x \in [-1.3, -0.2]$

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 x (if it exists).

$$13 = \ln \sqrt[3]{\frac{11}{e^{8x}}}$$

A. $x \in [4.1, 5.7]$

B. $x \in [-2.8, 0.7]$

C. $x \in [-3.2, -1.6]$

D. There is no Real solution to the equation.

E. None of the above.