1. 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. $x \in [-11.38, -7.38]$

B. $x \in [3.5, 5.5]$

C. $x \in [-0.61, 2.39]$

D. $x \in [-4.27, -0.27]$

E. There is no Real solution to the equation.

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

$$\log_3(-2x + 6) + 6 = 3$$

A. $x \in [14.5, 18.5]$

B. $x \in [-10.5, -9.5]$

C. $x \in [8.5, 12.5]$

D. $x \in [2.98, 6.98]$

E. There is no Real solution to the equation.

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

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

A. $(-\infty, a], a \in [5.9, 8.7]$

B. $[a, \infty), a \in [-12.5, -7.2]$

C. $(-\infty, a), a \in [1.1, 4.1]$

D. $(a, \infty), a \in [-6.3, -1.8]$

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

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

$$f(x) = \log_2(x+5) + 4$$

A. $[a, \infty), a \in [3.79, 4.47]$

B. $(a, \infty), a \in [-5.17, -4.79]$

C. $(-\infty, a], a \in [-4.95, -3.6]$

D. $(-\infty, a), a \in [4.35, 5.47]$

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

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

$$f(x) = e^{x+6} - 4$$

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

B. $(-\infty, a), a \in [-8, -3]$

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

D. $(-\infty, a], a \in [-8, -3]$

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

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

$$13 = \sqrt[3]{\frac{30}{e^{3x}}}$$

A. $x \in [-1, 0.7]$

B. $x \in [-0.1, 3]$

C. $x \in [-15.2, -14]$

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).

$$4^{-3x+5} = 9^{-5x-5}$$

A. $x \in [-3.19, -1.95]$

B. $x \in [-1.81, -0.72]$

C. $x \in [-5.68, -4.83]$

D. $x \in [-10.42, -8.54]$

E. There is no Real solution to the equation.

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

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

A. $x \in [1.1, 3.7]$

B. $x \in [-13.9, -12.6]$

C. $x \in [-0.9, -0.2]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_4(4x + 8) + 6 = 2$$

A. $x \in [64, 71]$

B. $x \in [1, 6]$

C. $x \in [60, 64]$

D. $x \in [-4, 1]$

E. There is no Real solution to the equation.

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

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

A. $(-\infty, a], a \in [-3, 2]$

B. $[a, \infty), a \in [0, 7]$

C. $(-\infty, a), a \in [-3, 2]$

D. $(a, \infty), a \in [0, 7]$

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