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

$$f(x) = \log_2(x+2) - 3$$

A. $(-\infty, a), a \in [2.75, 3.43]$

B. $[a, \infty), a \in [-2.02, -1.88]$

C. $[a, \infty), a \in [1.72, 2.56]$

D. $(-\infty, a), a \in [-3.22, -2.99]$

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

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

$$4^{-5x-2} = 49^{-4x+5}$$

A. $x \in [-8, -5.2]$

B. $x \in [-22.6, -20.7]$

C. $x \in [1.3, 2.8]$

D. $x \in [-1.7, 2]$

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 x (if it exists).

$$21 = \sqrt[6]{\frac{15}{e^{4x}}}$$

A. $x \in [-5.89, -1.89]$

B. $x \in [-0.85, 0.15]$

C. $x \in [-34.18, -27.18]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$2^{-4x-2} = 9^{-2x+4}$$

A. $x \in [0.7, 5.7]$

B. $x \in [-10.09, -4.09]$

C. $x \in [6.27, 8.27]$

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

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?

$$f(x) = \log_2(x - 4) - 2$$

A. $[a, \infty), a \in [-2.8, -0.3]$

B. $(-\infty, a], a \in [1.6, 3.7]$

C. $(a, \infty), a \in [2.7, 5.4]$

D. $(-\infty, a), a \in [-5.5, -3.4]$

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

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

$$f(x) = -e^{x-7} + 9$$

A. $(a, \infty), a \in [-9, -6]$

B. $[a, \infty), a \in [-9, -6]$

C. $(-\infty, a], a \in [3, 10]$

D. $(-\infty, a), a \in [3, 10]$

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

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

$$25 = \sqrt[7]{\frac{14}{e^{6x}}}$$

A. $x \in [-1.63, 0.37]$

B. $x \in [2.32, 7.32]$

C. $x \in [-30.61, -26.61]$

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).

$$\log_5(-3x + 7) + 5 = 3$$

A. $x \in [1.32, 6.32]$

B. $x \in [10, 14]$

C. $x \in [-45.33, -35.33]$

D. $x \in [6.33, 12.33]$

E. There is no Real solution to the equation.

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

$$\log_4(-3x + 7) + 5 = 3$$

A. $x \in [-22, -17]$

B. $x \in [-8.67, -3.67]$

C. $x \in [-0.69, 8.31]$

D. $x \in [-5, 2]$

E. There is no Real solution to the equation.

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

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

A. $(-\infty, a), a \in [-6, -1]$

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

C. $(-\infty, a], a \in [-6, -1]$

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

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