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

$$3^{4x+2} = 49^{3x-3}$$

A. $x \in [0.7, 3]$

B. $x \in [-5.7, -2.9]$

C. $x \in [-15.2, -12.1]$

D. $x \in [0.3, 1.8]$

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).

$$\log_4(-4x + 8) + 5 = 3$$

A. $x \in [-12, -5]$

B. $x \in [-2, 1]$

C. $x \in [-16, -13]$

D. $x \in [-1.02, 4.98]$

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?

$$f(x) = -e^{x-8} - 1$$

A. $(-\infty, a), a \in [-3.3, 0.5]$

B. $(a, \infty), a \in [-0.2, 2.1]$

C. $[a, \infty), a \in [-0.2, 2.1]$

D. $(-\infty, a], a \in [-3.3, 0.5]$

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

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

$$25 = \sqrt[7]{\frac{26}{e^{8x}}}$$

A. $x \in [-22.8, -21.7]$

B. $x \in [-1.2, 1.3]$

C. $x \in [2.4, 4.4]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$5^{4x-2} = 216^{2x+5}$$

A. $x \in [-10.98, -4.98]$

B. $x \in [-3.62, -0.62]$

C. $x \in [0.5, 4.5]$

D. $x \in [14.05, 17.05]$

E. There is no Real solution to the equation.

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

$$\log_3(4x + 6) + 4 = 2$$

A. $x \in [-0.06, 0.9]$

B. $x \in [-4.03, -2.7]$

C. $x \in [-1.58, -1.14]$

D. $x \in [-0.64, -0.21]$

E. There is no Real solution to the equation.

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

$$f(x) = \log_2(x-1) - 2$$

A. $(a, \infty), a \in [0.67, 1.01]$

B. $(-\infty, a], a \in [1.38, 2.17]$

C. $(-\infty, a), a \in [-1.19, -0.47]$

D. $[a, \infty), a \in [-2.33, -1.74]$

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

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

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

A. $[a, \infty), a \in [7.55, 8.98]$

B. $[a, \infty), a \in [-8.2, -7.71]$

C. $(-\infty, a), a \in [-7.77, -6.22]$

D. $(-\infty, a), a \in [6.98, 7.66]$

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

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

$$12 = \ln \sqrt[4]{\frac{6}{e^{7x}}}$$

A. $x \in [-2, -0.6]$

B. $x \in [-4.6, -2]$

C. $x \in [-6.7, -5.7]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = e^{x+3} + 9$$

A. $(-\infty, a], a \in [7, 12]$

B. $(-\infty, a), a \in [7, 12]$

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

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

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