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

$$\log_2(2x+6)+6=2$$

A. $x \in [-5.1, -1.9]$

B. $x \in [3.5, 5.6]$

C. $x \in [9.5, 12.2]$

D. $x \in [-2.3, 1.4]$

E. There is no Real solution to the equation.

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

$$f(x) = -e^{x+3} + 1$$

A. $(a, \infty), a \in [-4.5, -0.7]$

B. $(-\infty, a), a \in [0.7, 1.7]$

C. $[a, \infty), a \in [-4.5, -0.7]$

D. $(-\infty, a], a \in [0.7, 1.7]$

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

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

$$21 = \ln \sqrt[5]{\frac{20}{e^{8x}}}$$

A. $x \in [-3.28, 0.72]$

B. $x \in [10.75, 15.75]$

C. $x \in [-7.88, -2.88]$

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).

$$5^{3x+3} = 49^{5x-5}$$

A. $x \in [1, 2.3]$

B. $x \in [11.4, 12.7]$

C. $x \in [0, 1.6]$

D. $x \in [3.6, 5.1]$

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?

$$f(x) = \log_2(x - 1) - 7$$

A. $[a, \infty), a \in [-4, 0]$

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

C. $(-\infty, a), a \in [-11, -4]$

D. $[a, \infty), a \in [0, 2]$

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

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

$$22 = \sqrt[7]{\frac{20}{e^{7x}}}$$

A. $x \in [-3.66, -1.66]$

B. $x \in [-1.46, 0.54]$

C. $x \in [-22.43, -20.43]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$f(x) = -\log_2(x-8) + 9$$

A. $[a, \infty), a \in [7.91, 8.66]$

B. $[a, \infty), a \in [-8.45, -8]$

C. $(-\infty, a), a \in [-9.26, -8.87]$

D. $(-\infty, a), a \in [8.15, 9.56]$

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

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

$$5^{2x-2} = \left(\frac{1}{36}\right)^{4x+5}$$

A. $x \in [6.29, 8.16]$

B. $x \in [0.12, 0.54]$

C. $x \in [-0.88, -0.5]$

D. $x \in [-3.67, -3.35]$

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?

$$f(x) = e^{x+2} + 1$$

A. $[a, \infty), a \in [-3, 0]$

B. $(-\infty, a], a \in [0, 3]$

C. $(a, \infty), a \in [-3, 0]$

D. $(-\infty, a), a \in [0, 3]$

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

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

$$\log_4(3x+7)+5=2$$

A. $x \in [0, 6]$

B. $x \in [21.67, 26.67]$

C. $x \in [28.33, 32.33]$

D. $x \in [-5.33, -1.33]$

E. There is no Real solution to the equation.
