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

$$6 = \sqrt[4]{\frac{27}{e^{8x}}}$$

   A. $x \in [-0.95, -0.34]$

   B. $x \in [-0.22, 0]$

   C. $x \in [-4.76, -2.44]$

   D. There is no Real solution to the equation.

   E. None of the above.

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

$$3^{3x+5} = \left(\frac{1}{16}\right)^{4x+4}$$

   A. $x \in [16.3, 17.2]$

   B. $x \in [0.8, 1.71]$

   C. $x \in [-0.85, 0.45]$

   D. $x \in [-1.92, -0.79]$

   E. There is no Real solution to the equation.

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

$$2^{-2x-3} = \left(\frac{1}{9}\right)^{-5x+5}$$

   A. $x \in [-3.2, -1.7]$

   B. $x \in [0.3, 1.2]$

   C. $x \in [1.6, 4.1]$

   D. $x \in [-1.9, 0.3]$

E. There is no Real solution to the equation.

4. Solve the equation for x and choose the interval that contains the solution (if it exists).
$$\log_5(-3x + 8) + 6 = 3$$

A. $x \in [-2.34, 8.66]$

B. $x \in [78.33, 82.33]$

C. $x \in [81.67, 84.67]$

D. $x \in [-43, -35]$

E. There is no Real solution to the equation.

5. Which of the following intervals describes the Domain of the function below?
$$f(x) = e^{x+7} + 2$$

A. $(-\infty, a], a \in [0.6, 5.1]$

B. $(a, \infty), a \in [-3, -1.2]$

C. $[a, \infty), a \in [-3, -1.2]$

D. $(-\infty, a), a \in [0.6, 5.1]$

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

6. Solve the equation for x and choose the interval that contains x (if it exists).
$$17 = \ln \sqrt[4]{\frac{23}{e^{7x}}}$$

A. $x \in [-5.41, -3.41]$

B. $x \in [-2.07, -1.07]$

C. $x \in [8.27, 12.27]$

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).
$$\log_4 (4x + 6) + 5 = 2$$

A. $x \in [-3.6, 1]$

B. $x \in [2.4, 5.3]$

C. $x \in [19.3, 24.7]$

D. $x \in [15.8, 20.2]$

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?
$$f(x) = -\log_2 (x - 9) - 1$$

A. $(-\infty, a), a \in [-9.1, -7.5]$

B. $(-\infty, a], a \in [-0.9, 2.6]$

C. $[a, \infty), a \in [-2.5, 0.5]$

D. $(a, \infty), a \in [7, 12.8]$

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

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9. Which of the following intervals describes the Range of the function below?
$$f(x) = -e^{x-2} - 3$$

A. $(-\infty, a), a \in [-5, 0]$

B. $(-\infty, a], a \in [-5, 0]$

C. $[a, \infty), a \in [3, 4]$

D. $(a, \infty), a \in [3, 4]$

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

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

$$f(x) = -\log_2(x+2) - 8$$

A. $(a, \infty), a \in [-2.5, -0.4]$

B. $(-\infty, a), a \in [-0.3, 3.4]$

C. $[a, \infty), a \in [-8.6, -6.8]$

D. $(-\infty, a], a \in [5.7, 10.3]$

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