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

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

A. $(-\infty, a], a \in [-1.43, -0.74]$

B. $(-\infty, a), a \in [-2.05, -1.96]$

C. $(a, \infty), a \in [1.93, 2.23]$

D. $[a, \infty), a \in [0.86, 1.69]$

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

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

$$5^{-5x-3} = 343^{-4x+4}$$

A. $x \in [-1.54, 1.46]$

B. $x \in [-30.18, -24.18]$

C. $x \in [-7, -6]$

D. $x \in [0.84, 2.84]$

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 the solution (if it exists).

$$\log_5(-4x+8) + 5 = 3$$

A. $x \in [7, 17]$

B. $x \in [-2.01, 2.99]$

C. $x \in [6, 9]$

D. $x \in [-31.25, -27.25]$

E. There is no Real solution to the equation.

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

$$f(x) = e^{x-6} - 1$$

A. $[a, \infty), a \in [1, 2]$

B. $(a, \infty), a \in [1, 2]$

C. $(-\infty, a), a \in [-1, 0]$

D. $(-\infty, a], a \in [-1, 0]$

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

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

$$13 = \ln \sqrt[3]{\frac{11}{e^{8x}}}$$

A. $x \in [4.5, 6.6]$

B. $x \in [-1.6, -0.6]$

C. $x \in [-3.3, -2.5]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$4^{-5x-3} = \left(\frac{1}{25}\right)^{-4x-5}$$

A. $x \in [-22.1, -19.7]$

B. $x \in [-0.4, 0.8]$

C. $x \in [-1.2, -0.9]$

D. $x \in [1.9, 2.3]$

E. There is no Real solution to the equation.

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

$$5 = \sqrt[7]{\frac{27}{e^{3x}}}$$

A. $x \in [0.66, 7.66]$

B. $x \in [-15.77, -9.77]$

C. $x \in [-0.97, 2.03]$

D. There is no Real solution to the equation.

E. None of the above.

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

$$\log_5(-2x + 5) + 5 = 3$$

A. $x \in [17.5, 21.5]$

B. $x \in [-64, -52]$

C. $x \in [-0.52, 5.48]$

D. $x \in [13.5, 14.5]$

E. There is no Real solution to the equation.

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

$$f(x) = -e^{x-9} - 5$$

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

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

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

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

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

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

$$f(x) = \log_2(x - 6) + 9$$

A. $(a, \infty), a \in [4.7, 7.9]$

B. $[a, \infty), a \in [7.5, 9.8]$

C. $(-\infty, a), a \in [-8.8, -5.7]$

D. $(-\infty, a], a \in [-12.6, -6.9]$

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