

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

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

- A. $(-\infty, a), a \in [6.75, 7.62]$
 - B. $(a, \infty), a \in [-7.96, -6.29]$
 - C. $(-\infty, a], a \in [7.38, 8.33]$
 - D. $[a, \infty), a \in [-8.69, -7.69]$
 - E. $(-\infty, \infty)$
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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

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

- A. $x \in [1.21, 1.53]$
 - B. $x \in [-1.24, -1.07]$
 - C. $x \in [14.47, 15.13]$
 - D. $x \in [-1.05, -0.87]$
 - E. There is no Real solution to the equation.
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3. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x - 4) + 7$$

- A. $(-\infty, a), a \in [5, 11]$
 - B. $[a, \infty), a \in [3, 6]$
 - C. $(-\infty, a), a \in [-7, -5]$
 - D. $[a, \infty), a \in [-6, 1]$
 - E. $(-\infty, \infty)$
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4. Solve the equation for x and choose the interval that contains x (if it exists).

$$18 = \sqrt[3]{\frac{22}{e^{5x}}}$$

- A. $x \in [-0.6, 1.2]$
 - B. $x \in [-12.1, -9.5]$
 - C. $x \in [-1.4, -1.1]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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5. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-1} - 5$$

- A. $(-\infty, a), a \in [-5, -4]$
 - B. $(a, \infty), a \in [4, 7]$
 - C. $(-\infty, a], a \in [-5, -4]$
 - D. $[a, \infty), a \in [4, 7]$
 - E. $(-\infty, \infty)$
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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

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

- A. $x \in [2.9, 4]$
- B. $x \in [-1.7, 0.8]$
- C. $x \in [-4.4, -1.8]$
- D. $x \in [0.9, 3.1]$
- E. There is no Real solution to the equation.

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

$$f(x) = -e^{x+2} + 9$$

- A. $(-\infty, a], a \in [5, 11]$
- B. $(-\infty, a), a \in [5, 11]$
- C. $[a, \infty), a \in [-13, -7]$
- D. $(a, \infty), a \in [-13, -7]$
- E. $(-\infty, \infty)$

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

$$6 = \ln \sqrt[5]{\frac{24}{e^{6x}}}$$

- A. $x \in [-1.8, -1.3]$
- B. $x \in [-3.5, -1.8]$
- C. $x \in [2.3, 5.8]$
- D. There is no Real solution to the equation.
- E. None of the above.

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

$$2^{5x-2} = \left(\frac{1}{125}\right)^{4x+4}$$

- A. $x \in [4.4, 7]$
- B. $x \in [-20.1, -16.4]$
- C. $x \in [-1.7, -0.6]$
- D. $x \in [-0.5, 3.1]$

E. There is no Real solution to the equation.

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

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

A. $x \in [1.13, 1.53]$

B. $x \in [1.43, 2.41]$

C. $x \in [-20.9, -19.02]$

D. $x \in [-2.25, -1.33]$

E. There is no Real solution to the equation.
