

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

$$4^{-4x-5} = 49^{-2x+2}$$

- A. $x \in [4.57, 7.57]$
 - B. $x \in [-10.36, -4.36]$
 - C. $x \in [-4.5, -2.5]$
 - D. $x \in [2.13, 6.13]$
 - 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).

$$2^{-2x-5} = \left(\frac{1}{125}\right)^{-3x-4}$$

- A. $x \in [-2.2, -0.4]$
 - B. $x \in [22.2, 23.4]$
 - C. $x \in [-0.1, 0.3]$
 - D. $x \in [0.7, 2.4]$
 - 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?

$$f(x) = e^{x-1} - 9$$

- A. $(-\infty, a], a \in [-12, -6]$
 - B. $(-\infty, a), a \in [-12, -6]$
 - C. $[a, \infty), a \in [6, 13]$
 - D. $(a, \infty), a \in [6, 13]$
 - E. $(-\infty, \infty)$
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4. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-6} + 9$$

- A. $(a, \infty), a \in [-13, -7]$
 - B. $[a, \infty), a \in [-13, -7]$
 - C. $(-\infty, a], a \in [9, 13]$
 - D. $(-\infty, a), a \in [9, 13]$
 - E. $(-\infty, \infty)$
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5. Which of the following intervals describes the Range of the function below?

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

- A. $[a, \infty), a \in [2.8, 6.3]$
 - B. $(-\infty, a), a \in [4.6, 7.9]$
 - C. $(-\infty, a), a \in [-7.3, -5.6]$
 - D. $[a, \infty), a \in [-6, -2.9]$
 - E. $(-\infty, \infty)$
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6. Solve the equation for x and choose the interval that contains x (if it exists).

$$15 = \sqrt[3]{\frac{25}{e^{6x}}}$$

- A. $x \in [-8.89, -6.42]$
 - B. $x \in [0.64, 1.47]$
 - C. $x \in [-0.8, 0.38]$
 - 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?

$$f(x) = -\log_2(x + 7) + 3$$

- A. $[a, \infty), a \in [5, 9]$
 - B. $(-\infty, a), a \in [-6, 2]$
 - C. $(-\infty, a), a \in [1, 6]$
 - D. $[a, \infty), a \in [-10, -5]$
 - E. $(-\infty, \infty)$
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8. Solve the equation for x and choose the interval that contains the solution (if it exists).

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

- A. $x \in [17.67, 21.67]$
 - B. $x \in [7, 11]$
 - C. $x \in [-2.65, -1.65]$
 - D. $x \in [-2.33, 6.67]$
 - E. There is no Real solution to the equation.
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9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-3x + 5) + 4 = 2$$

- A. $x \in [-10.67, -2.67]$
 - B. $x \in [3, 11]$
 - C. $x \in [10.33, 14.33]$
 - D. $x \in [-1.35, 3.65]$
 - E. There is no Real solution to the equation.
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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$6 = \ln \sqrt[5]{\frac{13}{e^{8x}}}$$

- A. $x \in [-1.35, -1.02]$
 - B. $x \in [-1.54, -1.35]$
 - C. $x \in [-3.52, -3.29]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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