

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

$$7 = \ln \sqrt[6]{\frac{6}{e^{3x}}}$$

- A. $x \in [-4.36, -3.73]$
 - B. $x \in [-13.7, -13.21]$
 - C. $x \in [-4.64, -4.1]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_4(-2x + 6) + 6 = 3$$

- A. $x \in [-4.01, 5.99]$
 - B. $x \in [-45.5, -39.5]$
 - C. $x \in [-39.5, -32.5]$
 - D. $x \in [-36, -26]$
 - 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).

$$3^{5x+2} = 49^{2x-3}$$

- A. $x \in [-5.9, -4]$
 - B. $x \in [0.7, 2.6]$
 - C. $x \in [5.7, 6.4]$
 - D. $x \in [-2.5, -0.4]$
 - E. There is no Real solution to the equation.
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4. Which of the following intervals describes the Range of the function below?

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

- A. $[a, \infty), a \in [-2.8, 0.9]$
 - B. $(a, \infty), a \in [-2.8, 0.9]$
 - C. $(-\infty, a), a \in [0.3, 1.8]$
 - D. $(-\infty, a], a \in [0.3, 1.8]$
 - E. $(-\infty, \infty)$
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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{5x+5} = 216^{3x-5}$$

- A. $x \in [-6, -1]$
 - B. $x \in [4.32, 5.32]$
 - C. $x \in [-21.46, -13.46]$
 - D. $x \in [0.24, 4.24]$
 - E. There is no Real solution to the equation.
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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_2(3x + 7) + 5 = 3$$

- A. $x \in [-0.32, 0.65]$
 - B. $x \in [3.66, 4.68]$
 - C. $x \in [-3.04, -1.22]$
 - D. $x \in [-2, -0.63]$
 - E. There is no Real solution to the equation.
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7. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 5) - 6$$

- A. $(-\infty, a], a \in [5.47, 6.75]$
 - B. $(a, \infty), a \in [4.4, 5.21]$
 - C. $[a, \infty), a \in [-6.36, -5.68]$
 - D. $(-\infty, a), a \in [-5.79, -4.59]$
 - E. $(-\infty, \infty)$
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8. Solve the equation for x and choose the interval that contains x (if it exists).

$$13 = \ln \sqrt[5]{\frac{10}{e^{6x}}}$$

- A. $x \in [-6.3, -2.7]$
 - B. $x \in [9.9, 10.7]$
 - C. $x \in [-3.9, -1.6]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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9. Which of the following intervals describes the Domain of the function below?

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

- A. $[a, \infty), a \in [-1.91, -0.86]$
 - B. $(-\infty, a), a \in [0.85, 2.48]$
 - C. $(-\infty, a], a \in [0.85, 2.48]$
 - D. $(a, \infty), a \in [-1.91, -0.86]$
 - E. $(-\infty, \infty)$
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10. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x + 9) + 1$$

- A. $(-\infty, a], a \in [-1, 0]$
 - B. $(a, \infty), a \in [-10, -8]$
 - C. $(-\infty, a), a \in [4, 10]$
 - D. $[a, \infty), a \in [1, 4]$
 - E. $(-\infty, \infty)$
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