

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

$$24 = \ln \sqrt[3]{\frac{7}{e^{3x}}}$$

- A. $x \in [-25.35, -22.35]$
 - B. $x \in [-6.83, -1.83]$
 - C. $x \in [-17.35, -12.35]$
 - 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).

$$2^{5x-3} = \left(\frac{1}{27}\right)^{4x+4}$$

- A. $x \in [0.2, 2.5]$
 - B. $x \in [6.2, 7.2]$
 - C. $x \in [-12.8, -9.2]$
 - D. $x \in [-2.3, -0.1]$
 - 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).

$$3^{3x+2} = 343^{4x+5}$$

- A. $x \in [-2.1, -0.3]$
- B. $x \in [-27.1, -26.5]$
- C. $x \in [-0.2, 0.3]$
- D. $x \in [-3.2, -1.4]$
- E. There is no Real solution to the equation.

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

$$\log_2(-3x + 5) + 6 = 3$$

- A. $x \in [-1.18, -0.7]$
 - B. $x \in [-5.01, -4.39]$
 - C. $x \in [1.31, 1.64]$
 - D. $x \in [-2.72, -1.24]$
 - E. There is no Real solution to the equation.
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5. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+7} - 9$$

- A. $[a, \infty), a \in [7, 17]$
 - B. $(-\infty, a], a \in [-9, -2]$
 - C. $(a, \infty), a \in [7, 17]$
 - D. $(-\infty, a), a \in [-9, -2]$
 - E. $(-\infty, \infty)$
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6. Solve the equation for x and choose the interval that contains x (if it exists).

$$24 = \ln \sqrt[4]{\frac{11}{e^{7x}}}$$

- A. $x \in [-8.51, -3.51]$
- B. $x \in [13.37, 14.37]$
- C. $x \in [-2.16, -1.16]$
- 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).

$$\log_2(3x + 7) + 6 = 3$$

- A. $x \in [-2.62, -1.77]$
 - B. $x \in [0.56, 0.8]$
 - C. $x \in [5.1, 5.71]$
 - D. $x \in [-0.01, 0.64]$
 - E. There is no Real solution to the equation.
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8. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 9) - 3$$

- A. $(-\infty, a), a \in [3, 5]$
 - B. $(-\infty, a), a \in [-3, -1]$
 - C. $[a, \infty), a \in [-9, -7]$
 - D. $[a, \infty), a \in [5, 13]$
 - E. $(-\infty, \infty)$
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9. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+3} + 4$$

- A. $(-\infty, a], a \in [4, 6]$
- B. $(a, \infty), a \in [-8, 1]$
- C. $(-\infty, a), a \in [4, 6]$
- D. $[a, \infty), a \in [-8, 1]$
- E. $(-\infty, \infty)$

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

$$f(x) = -\log_2(x + 6) - 8$$

- A. $(-\infty, a), a \in [-9.1, -7.1]$
 - B. $[a, \infty), a \in [-7.2, -5.8]$
 - C. $[a, \infty), a \in [5.6, 7]$
 - D. $(-\infty, a), a \in [6.1, 9]$
 - E. $(-\infty, \infty)$
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