

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

$$5^{-4x+4} = \left(\frac{1}{64}\right)^{2x-5}$$

- A. $x \in [5.5, 7.9]$
 - B. $x \in [1.1, 2.2]$
 - C. $x \in [-6.4, -4.1]$
 - D. $x \in [-4.4, -1.3]$
 - 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).

$$\log_4(3x + 8) + 4 = 3$$

- A. $x \in [-2.66, -2.43]$
 - B. $x \in [-2.53, -1.89]$
 - C. $x \in [2.82, 3.22]$
 - D. $x \in [18.37, 18.82]$
 - 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?

$$f(x) = -e^{x-7} + 6$$

- A. $(-\infty, a), a \in [3, 9]$
 - B. $(a, \infty), a \in [-10, -3]$
 - C. $(-\infty, a], a \in [3, 9]$
 - D. $[a, \infty), a \in [-10, -3]$
 - E. $(-\infty, \infty)$
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4. Solve the equation for x and choose the interval that contains x (if it exists).

$$14 = \sqrt[5]{\frac{8}{e^{6x}}}$$

- A. $x \in [1.48, 2.38]$
 - B. $x \in [-0.61, 0.31]$
 - C. $x \in [-12.35, -11.32]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

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

- A. $x \in [0.1, 2.1]$
 - B. $x \in [1.16, 5.16]$
 - C. $x \in [-4, -1]$
 - D. $x \in [-13.5, -10.5]$
 - 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).

$$\log_5(4x + 6) + 4 = 3$$

- A. $x \in [29.65, 29.95]$
 - B. $x \in [-1.75, -1.68]$
 - C. $x \in [0.98, 1.35]$
 - D. $x \in [-1.56, -1.39]$
 - 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?

$$f(x) = \log_2(x + 3) + 8$$

- A. $(-\infty, a), a \in [0.2, 5]$
 - B. $[a, \infty), a \in [5.4, 9.2]$
 - C. $(-\infty, a], a \in [-9, -7.4]$
 - D. $(a, \infty), a \in [-3.1, 0.4]$
 - E. $(-\infty, \infty)$
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8. Which of the following intervals describes the Domain of the function below?

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

- A. $(a, \infty), a \in [7.2, 9.1]$
 - B. $(-\infty, a), a \in [-9.1, -7.7]$
 - C. $[a, \infty), a \in [0.1, 1.4]$
 - D. $(-\infty, a], a \in [-4.9, -0.1]$
 - E. $(-\infty, \infty)$
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9. Solve the equation for x and choose the interval that contains x (if it exists).

$$20 = \sqrt[3]{\frac{15}{e^{9x}}}$$

- A. $x \in [-7.1, -5.4]$
 - B. $x \in [-0.5, 1.6]$
 - C. $x \in [-0.8, -0.4]$
 - D. There is no Real solution to the equation.
 - E. None of the above.
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10. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x-6} + 7$$

- A. $(-\infty, a), a \in [7, 9]$
 - B. $(a, \infty), a \in [-7, -5]$
 - C. $[a, \infty), a \in [-7, -5]$
 - D. $(-\infty, a], a \in [7, 9]$
 - E. $(-\infty, \infty)$
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