

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

$$f(x) = e^{x+1} + 7$$

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

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

- A. $x \in [-1.11, -0.07]$
 - B. $x \in [1.96, 3.46]$
 - C. $x \in [0.54, 0.92]$
 - D. $x \in [-7.15, -6.38]$
 - 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).

$$\log_4(4x + 8) + 6 = 2$$

- A. $x \in [63, 70]$
 - B. $x \in [-2, 0]$
 - C. $x \in [59, 64]$
 - D. $x \in [2, 3]$
 - 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?

$$f(x) = e^{x-2} - 8$$

- A. $(-\infty, a], a \in [6, 12]$
 - B. $(a, \infty), a \in [-10, -5]$
 - C. $[a, \infty), a \in [-10, -5]$
 - D. $(-\infty, a), a \in [6, 12]$
 - E. $(-\infty, \infty)$
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5. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x - 5) - 9$$

- A. $(-\infty, a), a \in [8.3, 10.2]$
 - B. $[a, \infty), a \in [-5.3, -2.5]$
 - C. $(-\infty, a), a \in [-9.2, -8.4]$
 - D. $[a, \infty), a \in [3.1, 7.4]$
 - E. $(-\infty, \infty)$
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6. Solve the equation for x and choose the interval that contains x (if it exists).

$$23 = \sqrt[4]{\frac{8}{e^{4x}}}$$

- A. $x \in [-3.62, -1.62]$
 - B. $x \in [-1.05, 0.95]$
 - C. $x \in [-25.52, -21.52]$
 - 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).

$$3^{5x+5} = \left(\frac{1}{16}\right)^{-3x+2}$$

- A. $x \in [-0.3, 1.7]$
 - B. $x \in [-1, 0]$
 - C. $x \in [-2.2, -1.2]$
 - D. $x \in [3.2, 5.6]$
 - E. There is no Real solution to the equation.
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8. Solve the equation for x and choose the interval that contains x (if it exists).

$$21 = \ln \sqrt[4]{\frac{26}{e^{8x}}}$$

- A. $x \in [-2.1, -1.5]$
 - B. $x \in [-4.9, -4.1]$
 - C. $x \in [-10.3, -9.1]$
 - 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?

$$f(x) = -\log_2(x - 9) + 5$$

- A. $(-\infty, a], a \in [-5.3, -3.7]$
- B. $[a, \infty), a \in [3.2, 6.6]$
- C. $(a, \infty), a \in [7.7, 9.4]$
- D. $(-\infty, a), a \in [-9.3, -7.2]$
- E. $(-\infty, \infty)$

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

$$\log_5(2x + 6) + 6 = 2$$

- A. $x \in [-519, -514]$
 - B. $x \in [-511, -508]$
 - C. $x \in [-6, 2]$
 - D. $x \in [8.5, 13.5]$
 - E. There is no Real solution to the equation.
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