

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

$$f(x) = \log_2(x + 8) + 5$$

- A.  $(-\infty, a), a \in [-6.4, -2.8]$
  - B.  $[a, \infty), a \in [7, 8.8]$
  - C.  $(-\infty, a), a \in [2.9, 7.4]$
  - D.  $[a, \infty), a \in [-8.6, -6.9]$
  - E.  $(-\infty, \infty)$
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2. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$4^{3x-3} = 27^{2x+2}$$

- A.  $x \in [10.5, 11.9]$
  - B.  $x \in [-3.4, -1.2]$
  - C.  $x \in [4.6, 6.9]$
  - D.  $x \in [-5.9, -2.5]$
  - E. There is no Real solution to the equation.
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3. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+3} + 2$$

- A.  $(a, \infty), a \in [-4, -1]$
  - B.  $(-\infty, a), a \in [0, 4]$
  - C.  $(-\infty, a], a \in [0, 4]$
  - D.  $[a, \infty), a \in [-4, -1]$
  - E.  $(-\infty, \infty)$
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4. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

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

- A.  $x \in [5, 10]$
  - B.  $x \in [-9, 3]$
  - C.  $x \in [130, 133]$
  - D.  $x \in [123, 128]$
  - 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?

$$f(x) = -e^{x+7} - 2$$

- A.  $[a, \infty), a \in [1.9, 6.7]$
  - B.  $(a, \infty), a \in [1.9, 6.7]$
  - C.  $(-\infty, a), a \in [-2.9, -0.8]$
  - D.  $(-\infty, a], a \in [-2.9, -0.8]$
  - E.  $(-\infty, \infty)$
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6. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$17 = \ln \sqrt[5]{\frac{15}{e^{8x}}}$$

- A.  $x \in [-2.7, 0]$
  - B.  $x \in [-10.5, -9.6]$
  - C.  $x \in [-5.3, -2.9]$
  - 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).

$$\log_5(2x + 6) + 5 = 2$$

- A.  $x \in [-5, -2]$
  - B.  $x \in [-128.5, -120.5]$
  - C.  $x \in [7.5, 13.5]$
  - D.  $x \in [-121.5, -109.5]$
  - 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?

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

- A.  $(-\infty, a), a \in [-5.04, -3.6]$
  - B.  $[a, \infty), a \in [5.64, 7.65]$
  - C.  $(-\infty, a), a \in [2.7, 4.33]$
  - D.  $[a, \infty), a \in [-7.79, -6.84]$
  - E.  $(-\infty, \infty)$
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9. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$4^{-3x+3} = \left(\frac{1}{9}\right)^{-2x-4}$$

- A.  $x \in [-0.4, 3.2]$
  - B.  $x \in [5.5, 8.2]$
  - C.  $x \in [-1.4, 0.3]$
  - D.  $x \in [-5.7, -4.4]$
  - 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).

$$17 = \sqrt[4]{\frac{16}{e^{3x}}}$$

- A.  $x \in [-27.59, -22.59]$
  - B.  $x \in [-1.96, 2.04]$
  - C.  $x \in [-3.85, -1.85]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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