

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

$$\log_4(2x + 6) + 5 = 3$$

- A.  $x \in [-6.97, -1.97]$
  - B.  $x \in [11, 18]$
  - C.  $x \in [25, 39]$
  - D.  $x \in [0, 7]$
  - E. There is no Real solution to the equation.
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2. Which of the following intervals describes the Range of the function below?

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

- A.  $(-\infty, a), a \in [-7, 0]$
  - B.  $[a, \infty), a \in [4, 10]$
  - C.  $[a, \infty), a \in [-13, -8]$
  - D.  $(-\infty, a), a \in [3, 4]$
  - E.  $(-\infty, \infty)$
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3. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$9 = \sqrt[4]{\frac{14}{e^{3x}}}$$

- A.  $x \in [-1.6, 0.2]$
  - B.  $x \in [-14.3, -11.7]$
  - C.  $x \in [1.2, 2.6]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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4. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$12 = \sqrt[3]{\frac{6}{e^{9x}}}$$

- A.  $x \in [0.61, 0.72]$
  - B.  $x \in [-0.48, 0.29]$
  - C.  $x \in [-4.32, -3.62]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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5. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x + 3) + 2$$

- A.  $(-\infty, a), a \in [2.84, 3.02]$
  - B.  $(-\infty, a], a \in [-2.16, -1.5]$
  - C.  $(a, \infty), a \in [-3.21, -2.5]$
  - D.  $[a, \infty), a \in [1.76, 2.34]$
  - E.  $(-\infty, \infty)$
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6. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x+4} - 1$$

- A.  $(a, \infty), a \in [-3.03, -0.92]$
  - B.  $(-\infty, a), a \in [0.79, 1.35]$
  - C.  $(-\infty, a], a \in [0.79, 1.35]$
  - D.  $[a, \infty), a \in [-3.03, -0.92]$
  - E.  $(-\infty, \infty)$
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7. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$3^{2x+3} = \left(\frac{1}{64}\right)^{4x-4}$$

- A.  $x \in [-1.3, -0.2]$
  - B.  $x \in [0.1, 1.5]$
  - C.  $x \in [-7.6, -5.8]$
  - D.  $x \in [2.7, 4.3]$
  - 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 the solution (if it exists).

$$2^{-3x-2} = \left(\frac{1}{25}\right)^{2x-5}$$

- A.  $x \in [-2.6, 0.3]$
  - B.  $x \in [-0.1, 1.4]$
  - C.  $x \in [-4, -2.8]$
  - D.  $x \in [3.1, 4.1]$
  - E. There is no Real solution to the equation.
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9. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_5(-3x + 6) + 5 = 3$$

- A.  $x \in [6.1, 9.5]$
- B.  $x \in [-40.3, -39.1]$
- C.  $x \in [12, 13.2]$
- D.  $x \in [1.5, 2.8]$
- E. There is no Real solution to the equation.

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

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

- A.  $(a, \infty), a \in [0, 5]$
  - B.  $[a, \infty), a \in [0, 5]$
  - C.  $(-\infty, a), a \in [-5, -2]$
  - D.  $(-\infty, a], a \in [-5, -2]$
  - E.  $(-\infty, \infty)$
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