

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

$$f(x) = -\log_2(x + 2) + 4$$

- A.  $(-\infty, a), a \in [-6, -2.5]$
  - B.  $[a, \infty), a \in [-2.5, -0.3]$
  - C.  $(-\infty, a), a \in [3.7, 7.3]$
  - D.  $[a, \infty), a \in [0, 3.8]$
  - E.  $(-\infty, \infty)$
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2. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$14 = \sqrt[3]{\frac{8}{e^{8x}}}$$

- A.  $x \in [-0.68, -0.39]$
  - B.  $x \in [-1.64, -0.72]$
  - C.  $x \in [-6.69, -5.16]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x+5} - 8$$

- A.  $(a, \infty), a \in [5, 11]$
  - B.  $(-\infty, a], a \in [-9, -2]$
  - C.  $(-\infty, a), a \in [-9, -2]$
  - D.  $[a, \infty), a \in [5, 11]$
  - E.  $(-\infty, \infty)$
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4. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$4^{-2x-2} = \left(\frac{1}{25}\right)^{3x-5}$$

- A.  $x \in [-3.9, -2.8]$
  - B.  $x \in [1.6, 3.1]$
  - C.  $x \in [-0.9, 0.1]$
  - D.  $x \in [-0.3, 0.9]$
  - E. There is no Real solution to the equation.
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5. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_2(-2x + 7) + 4 = 3$$

- A.  $x \in [2.91, 3.15]$
  - B.  $x \in [3.09, 3.26]$
  - C.  $x \in [-4.21, -3.82]$
  - D.  $x \in [-0.63, -0.45]$
  - 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).

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

- A.  $x \in [77.5, 80.8]$
  - B.  $x \in [0.5, 4.9]$
  - C.  $x \in [-41.3, -37.6]$
  - D.  $x \in [82.2, 83.4]$
  - E. There is no Real solution to the equation.
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7. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x + 4) - 8$$

- A.  $[a, \infty), a \in [-0.6, 5.6]$
  - B.  $(-\infty, a), a \in [7.9, 8.7]$
  - C.  $(-\infty, a), a \in [-9.2, -6.4]$
  - D.  $[a, \infty), a \in [-4.9, 0.3]$
  - E.  $(-\infty, \infty)$
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8. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$2^{-3x+3} = 25^{-2x+5}$$

- A.  $x \in [-14.6, -13.7]$
  - B.  $x \in [-0.4, 1.7]$
  - C.  $x \in [-2.6, -1.8]$
  - D.  $x \in [3.1, 3.8]$
  - 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  $x$  (if it exists).

$$8 = \ln \sqrt[3]{\frac{21}{e^{4x}}}$$

- A.  $x \in [-5.48, -4.83]$
  - B.  $x \in [-2.42, -1.76]$
  - C.  $x \in [-3.87, -2.81]$
  - 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 Domain of the function below?

$$f(x) = e^{x-5} - 8$$

- A.  $(-\infty, a], a \in [-8, -7]$
  - B.  $(-\infty, a), a \in [-8, -7]$
  - C.  $(a, \infty), a \in [7, 11]$
  - D.  $[a, \infty), a \in [7, 11]$
  - E.  $(-\infty, \infty)$
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