

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

$$f(x) = -\log_2(x - 6) - 8$$

- A.  $(-\infty, a), a \in [7.6, 9.57]$
  - B.  $(-\infty, a), a \in [-8.9, -7.09]$
  - C.  $[a, \infty), a \in [5.58, 6.46]$
  - D.  $[a, \infty), a \in [-6.16, -5.57]$
  - E.  $(-\infty, \infty)$
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2. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_4(4x + 7) + 6 = 2$$

- A.  $x \in [62.25, 64.25]$
  - B.  $x \in [0.25, 3.25]$
  - C.  $x \in [65.75, 68.75]$
  - D.  $x \in [-2.75, -0.75]$
  - 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?

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

- A.  $[a, \infty), a \in [5, 10]$
  - B.  $(-\infty, a], a \in [-7, -5]$
  - C.  $(-\infty, a), a \in [-7, -5]$
  - D.  $(a, \infty), a \in [5, 10]$
  - E.  $(-\infty, \infty)$
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4. Which of the following intervals describes the Domain of the function below?

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

- A.  $[a, \infty), a \in [-5.9, 1]$
  - B.  $(-\infty, a], a \in [1.9, 4.4]$
  - C.  $(a, \infty), a \in [7.9, 13]$
  - D.  $(-\infty, a), a \in [-13.6, -8.9]$
  - E.  $(-\infty, \infty)$
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5. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$21 = \sqrt[5]{\frac{26}{e^{4x}}}$$

- A.  $x \in [-1.9, 1.3]$
  - B.  $x \in [-28.7, -26.2]$
  - C.  $x \in [-4.2, -1.1]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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6. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_5(4x + 8) + 5 = 2$$

- A.  $x \in [0.25, 6.25]$
  - B.  $x \in [-4, 3]$
  - C.  $x \in [-58.75, -54.75]$
  - D.  $x \in [-62.75, -59.75]$
  - E. There is no Real solution to the equation.
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7. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$24 = \sqrt[4]{\frac{28}{e^{9x}}}$$

- A.  $x \in [-11.4, -9]$
  - B.  $x \in [-1.3, -0.7]$
  - C.  $x \in [-0.4, 0]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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8. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$4^{5x+3} = 25^{4x-3}$$

- A.  $x \in [-1.99, 2.01]$
  - B.  $x \in [-15.82, -11.82]$
  - C.  $x \in [-8, -2]$
  - D.  $x \in [1.32, 3.32]$
  - E. There is no Real solution to the equation.
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9. Which of the following intervals describes the Range of the function below?

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

- A.  $[a, \infty), a \in [-3, 11]$
  - B.  $(-\infty, a), a \in [-9, -2]$
  - C.  $(-\infty, a], a \in [-9, -2]$
  - D.  $(a, \infty), a \in [-3, 11]$
  - E.  $(-\infty, \infty)$
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10. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$2^{5x+4} = 125^{3x-5}$$

- A.  $x \in [-6.4, -3.1]$
  - B.  $x \in [-14.3, -13.3]$
  - C.  $x \in [0.2, 1]$
  - D.  $x \in [1.8, 2.7]$
  - E. There is no Real solution to the equation.
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