

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

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

- A.  $x \in [0.1, 1.5]$
  - B.  $x \in [-0.9, 0.5]$
  - C.  $x \in [-5.8, -4.2]$
  - D.  $x \in [2.2, 3.4]$
  - E. There is no Real solution to the equation.
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2. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$5^{5x+3} = 16^{3x-3}$$

- A.  $x \in [-9.57, -5.57]$
  - B.  $x \in [21.17, 24.17]$
  - C.  $x \in [-3, 1]$
  - D.  $x \in [46.59, 49.59]$
  - 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?

$$f(x) = e^{x-5} + 3$$

- A.  $(-\infty, a], a \in [0, 7]$
  - B.  $(-\infty, a), a \in [0, 7]$
  - C.  $(a, \infty), a \in [-7, 2]$
  - D.  $[a, \infty), a \in [-7, 2]$
  - E.  $(-\infty, \infty)$
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4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+7} + 3$$

- A.  $(-\infty, a), a \in [2, 7]$
  - B.  $(a, \infty), a \in [-3, -1]$
  - C.  $(-\infty, a], a \in [2, 7]$
  - D.  $[a, \infty), a \in [-3, -1]$
  - E.  $(-\infty, \infty)$
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5. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 1) - 2$$

- A.  $(-\infty, a], a \in [1.26, 2.29]$
  - B.  $[a, \infty), a \in [-2.12, -1.53]$
  - C.  $(-\infty, a), a \in [-1.11, -0.31]$
  - D.  $(a, \infty), a \in [0.79, 1.14]$
  - E.  $(-\infty, \infty)$
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6. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$10 = \sqrt[5]{\frac{15}{e^{9x}}}$$

- A.  $x \in [-0.4, 0.52]$
  - B.  $x \in [-1.55, -0.88]$
  - C.  $x \in [-6.19, -5.68]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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7. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 8) - 7$$

- A.  $(-\infty, a), a \in [-8.82, -7.32]$
  - B.  $(a, \infty), a \in [7.39, 8.26]$
  - C.  $(-\infty, a], a \in [6.78, 7.05]$
  - D.  $[a, \infty), a \in [-7.64, -5.02]$
  - E.  $(-\infty, \infty)$
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8. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_5(4x + 7) + 4 = 2$$

- A.  $x \in [-7.3, -3.2]$
  - B.  $x \in [1.8, 5.3]$
  - C.  $x \in [-2.7, 1.1]$
  - D.  $x \in [-11.8, -8.7]$
  - 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).

$$\log_5(-4x + 6) + 5 = 3$$

- A.  $x \in [0.4, 4.6]$
  - B.  $x \in [-31.4, -28.2]$
  - C.  $x \in [7, 12.5]$
  - D.  $x \in [4.8, 8.1]$
  - 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).

$$15 = \ln \sqrt[7]{\frac{16}{e^{5x}}}$$

- A.  $x \in [-4.9, -4.1]$
  - B.  $x \in [-6.4, -4.8]$
  - C.  $x \in [19.8, 21]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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