

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

$$5^{-4x-5} = 16^{-3x+4}$$

- A.  $x \in [9, 12]$
  - B.  $x \in [1, 5]$
  - C.  $x \in [-10, -8]$
  - D.  $x \in [-21, -17]$
  - E. There is no Real solution to the equation.
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2. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x + 1) + 3$$

- A.  $[a, \infty), a \in [1.99, 4.45]$
  - B.  $(-\infty, a], a \in [-4.13, -2.94]$
  - C.  $(-\infty, a), a \in [-0.12, 1.99]$
  - D.  $(a, \infty), a \in [-2.12, -0.02]$
  - E.  $(-\infty, \infty)$
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3. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

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

- A.  $x \in [-4, -2]$
- B.  $x \in [-128, -121]$
- C.  $x \in [7, 12]$

- D.  $x \in [-122, -113]$   
E. There is no Real solution to the equation.
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4. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x+7} + 6$$

- A.  $(-\infty, a], a \in [-8, -4]$   
B.  $[a, \infty), a \in [3, 9]$   
C.  $(a, \infty), a \in [3, 9]$   
D.  $(-\infty, a), a \in [-8, -4]$   
E.  $(-\infty, \infty)$
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5. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$7 = \ln \sqrt[5]{\frac{6}{e^{8x}}}$$

- A.  $x \in [-1.6, -1.5]$   
B.  $x \in [-4.22, -4.11]$   
C.  $x \in [-1.49, -1.38]$   
D. There is no Real solution to the equation.  
E. None of the above.
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