1. Determine whether the function below is 1-1.

$$f(x) = \sqrt{5x - 17}$$

   A. No, because there is a y-value that goes to 2 different x-values.

   B. Yes, the function is 1-1.

   C. No, because the range of the function is not $(-\infty, \infty)$.

   D. No, because there is an x-value that goes to 2 different y-values.

   E. No, because the domain of the function is not $(-\infty, \infty)$.

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2. Choose the interval below that f composed with g at $x = 1$ is in.

$$f(x) = 2x^3 + 3x^2 - 2x \text{ and } g(x) = 3x^3 + 2x^2 - 4x$$

   A. $(f \circ g)(1) \in [82, 88]$

   B. $(f \circ g)(1) \in [5, 13]$

   C. $(f \circ g)(1) \in [0, 6]$

   D. $(f \circ g)(1) \in [90, 95]$

   E. It is not possible to compose the two functions.

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3. Add the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \frac{4}{4x + 29} \text{ and } g(x) = \frac{1}{4x + 25}$$

   A. The domain is all Real numbers greater than or equal to $x = a,$ where $a \in [4, 7]$

   B. The domain is all Real numbers except $x = a,$ where $a \in [5, 8]$

   C. The domain is all Real numbers less than or equal to $x = a,$ where $a \in [5, 8]$

D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [-8, -2]$ and $b \in [-10, -4]$

E. The domain is all Real numbers.

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4. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = -12$ and choose the interval that $f^{-1}(-12)$ belongs to.

$$f(x) = 2x^2 + 4$$

A. $f^{-1}(-12) \in [7.18, 8.3]$

B. $f^{-1}(-12) \in [2.36, 3.91]$

C. $f^{-1}(-12) \in [0.16, 2.13]$

D. $f^{-1}(-12) \in [5.49, 6.34]$

E. The function is not invertible for all Real numbers.

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5. Find the inverse of the function below. Then, evaluate the inverse at $x = 9$ and choose the interval that $f^{-1}(9)$ belongs to.

$$f(x) = \ln(x - 5) + 4$$

A. $f^{-1}(9) \in [442417, 442419]$

B. $f^{-1}(9) \in [139, 146]$

C. $f^{-1}(9) \in [1202605, 1202614]$

D. $f^{-1}(9) \in [147, 158]$

E. $f^{-1}(9) \in [58, 61]$
