1. Multiply the following functions, then choose the domain of the resulting function from the list below.

$$f(x) = \sqrt{6x - 29} \text{ and } g(x) = 4x^3 + x^2 + 3x + 6$$

   A. The domain is all Real numbers less than or equal to $x = a$, where $a \in [1, 7]$

   B. The domain is all Real numbers except $x = a$, where $a \in [1, 5]$

   C. The domain is all Real numbers greater than or equal to $x = a$, where $a \in [1, 15]$

   D. The domain is all Real numbers except $x = a$ and $x = b$, where $a \in [-2, 8]$ and $b \in [-7, -1]$

   E. The domain is all Real numbers.

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

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

   A. $(f \circ g)(-1) \in [-7, 0]$

   B. $(f \circ g)(-1) \in [-20, -11]$

   C. $(f \circ g)(-1) \in [-14, -7]$

   D. $(f \circ g)(-1) \in [-33, -23]$

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

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

$$f(x) = 18x^2 - 255x + 812$$

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

   B. Yes, the function is 1-1.

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

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

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

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4. Find the inverse of the function below (if it exists). Then, evaluate the inverse at $x = -10$ and choose the interval the $f^{-1}(-10)$ belongs to.

$$f(x) = \sqrt[3]{3x + 2}$$

A. $f^{-1}(-10) \in [331.76, 332.76]$

B. $f^{-1}(-10) \in [-333.29, -332.31]$

C. $f^{-1}(-10) \in [333.87, 334.1]$

D. $f^{-1}(-10) \in [-334.57, -333.73]$

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.

$$f(x) = e^{x+5} - 4$$

A. $f^{-1}(9) \in [-1.37, -1.35]$

B. $f^{-1}(9) \in [7.49, 7.69]$

C. $f^{-1}(9) \in [-2.41, -2.29]$

D. $f^{-1}(9) \in [-2.66, -2.55]$

E. $f^{-1}(9) \in [-2.55, -2.43]$
