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ASSIGNMENT: Composite and Inverse Functions

DIRECTIONS: For inverse functions, switch the x and y variables and re-solve for y. For composite functions, write the first function and replace x-variables with the second function.

13.) Let $f(x) = \log_3 \sqrt{x}$, for $x > 0$.

(a) Show that $f^{-1}(x) = 3^{2x}$.

(b) Write down the range of f^{-1}.

Let $g(x) = \log_3 x$, for $x > 0$.

(c) Find the value of $(f^{-1} \circ g)(2)$, giving your answer as an integer.

25.) Let $f(x) = x^2 + 4$ and $g(x) = x - 1$.

(a) Find $(f \circ g)(x)$.

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Answer key:

13) b: range = all possible y-values written in inequality format (ex: $-4 < y \leq \infty$)
c: $y = 4$

25) $(f \cdot g)(x) = x^2 - 2x + 5$