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

Answer key:

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

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