

Exercise 74

For the following exercises, use each pair of functions to find $f(g(0))$ and $g(f(0))$.

$$f(x) = \sqrt{x + 4}, \quad g(x) = 12 - x^3$$

Solution

To find $f(g(0))$, evaluate $g(0)$ first: $g(0) = 12 - (0)^3 = 12$. Therefore,

$$f(g(0)) = f(12) = \sqrt{12 + 4} = \sqrt{16} = 4.$$

To find $g(f(0))$, evaluate $f(0)$ first: $f(0) = \sqrt{4} = 2$. Therefore,

$$g(f(0)) = g(2) = 12 - (2)^3 = 12 - 8 = 4.$$