

Answer on Question #42364 – Math – Calculus

Confirm that f and g are inverses by showing that $f(g(x)) = x$ and $g(f(x)) = x$.

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

Solution:

$$f(g(x)) = (g(x))^3 + 4 = (\sqrt[3]{x-4})^3 + 4 = (x-4) + 4 = x$$

And

$$g(f(x)) = \sqrt[3]{f(x)-4} = \sqrt[3]{(x^3+4)-4} = \sqrt[3]{x^3} = x$$

So, f and g are inverses.