

## 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.