

Let's verify (or prove) that $f(x) = 4x - 6$ and $g(x) = \frac{x+6}{4}$ are inverse functions.

Step 1 – Put $g(x)$ in the x spot for $f(x)$.

$$f(g(x)) = 4\left(\frac{x+6}{4}\right) - 6$$

Step 2 – Simplify – you should get x all by itself.

$$f(g(x)) = 4\left(\frac{x+6}{4}\right) - 6$$

$$f(g(x)) = x + 6 - 6$$

$$f(g(x)) = x$$



Step 3 – Put $f(x)$ in the x spot for $g(x)$.

$$g(f(x)) = \frac{(4x - 6) + 6}{4}$$

Step 4 – Simplify – once again, you should get x all by itself.

$$g(f(x)) = \frac{(4x - 6) + 6}{4}$$

$$g(f(x)) = \frac{4x}{4}$$

$$g(f(x)) = x$$



Step 5 – That proves it! Since $f(g(x)) = x$ and $g(f(x)) = x$, they are inverse functions.