Pg. 67, # 21 $f(x) = \sqrt{x-4}$; $g(x) = x^2 + 4$, $x \geq 0$

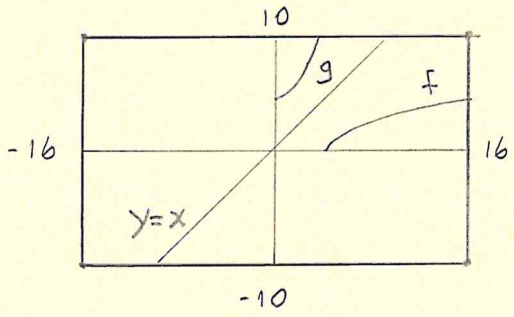
Note that:

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

and that:

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

So f and g are inverses.



Graphs are reflections in $y = x$

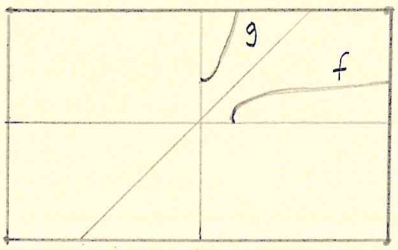
Pg. 67, #30 $f(x) = \sqrt[4]{3x-10}$; $g(x) = \frac{x^4+10}{3}$, $x \geq 0$

a) Now, $(f \circ g)(x) = f\left(\frac{x^4+10}{3}\right) = \sqrt[4]{3\left(\frac{x^4+10}{3}\right)-10} = \sqrt[4]{x^4} = x$

and $(g \circ f)(x) = g\left(\sqrt[4]{3x-10}\right) = \frac{\left(\sqrt[4]{3x-10}\right)^4+10}{3} = \frac{3x}{3} = x$

Thus f and g are inverses.

b) Graph



Pg. 68, #42

The graph passes both the Vert. and Horiz. line tests

Thus, it is a one-to-one function.

Pg. 68, #74 $f(x) = x^3 + 1$

To find f^{-1}:

① $y = x^3 + 1$

② $x = y^3 + 1$

③ $x - 1 = y^3$

$\sqrt[3]{x-1} = y$

④ $f^{-1}(x) = \sqrt[3]{x-1}$

Graphs: