

افترض أن: $g(x) = \sqrt{x}$, $f(x) = \frac{1}{x-1}$

① $(f+g)(x) = \frac{1}{x-1} + \sqrt{x}$

② $(f-g)(x) = \frac{1}{x-1} - \sqrt{x}$

③ $(f \times g)(x) = \frac{\sqrt{x}}{x-1}$

④ $\left(\frac{f}{g}\right)(x) = \frac{\frac{1}{x-1}}{\sqrt{x}}$

⑤ $(f \circ g)(x) = f(g(x)) = f(\sqrt{x}) = \frac{1}{\sqrt{x}-1}$

⑥ $(g \circ f)(x) = g(f(x)) = g\left(\frac{1}{x-1}\right) = \sqrt{\frac{1}{x-1}}$

فأوجد:

$g(x) = x^2$

$f(x) = \frac{1}{x}$

إذا كانت

① $(f+g)(x) = \frac{1}{x} + x^2 = \frac{x^3+1}{x}$

⑦ $f^{-1} = f \Rightarrow \frac{1}{x} \Rightarrow y = \frac{1}{x}$
 $x = \frac{1}{y}$

② $(f-g)(x) = \frac{1}{x} - x^2 = \frac{x^3-1}{x}$

∴ $f^{-1}(y) = \frac{1}{y}$

③ $(f \times g)(x) = \frac{x^2}{x} = x$

⑧ $f(7x) = \frac{1}{7x}$

④ $\left(\frac{f}{g}\right)(x) = \frac{\frac{1}{x}}{x^2} = \frac{x^{-1}}{x^2} = x^{-1-2} = x^{-3}$

⑨ $(7f)(x) = 7\left(\frac{1}{x}\right) = \frac{7}{x}$

⑤ $(f \circ g)(x) = f(g(x)) = f(x^2) = \frac{1}{x^2}$

⑩ $(f+7)(x) = \frac{1}{x} + 7$

⑥ $(g \circ f)(x) = g(f(x)) = g\left(\frac{1}{x}\right) = \frac{1}{x^2}$