

Esempio: $f: x \in \mathbb{R} \setminus \{1\} \longrightarrow \frac{x+2}{x-1} \in \mathbb{R}$

$$g: x \in \mathbb{R} \longrightarrow x+1 \in \mathbb{R}$$

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

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

$$\begin{aligned} (f \circ g)(x) + (g \circ f)(x) &= \frac{x+3}{x} + \frac{2x+1}{x-1} = \frac{(x+3)(x-1) + (2x+1)x}{x(x-1)} = \\ &= \frac{x^2 - \cancel{x} + 3x - 3 + 2x^2 + \cancel{x}}{x(x-1)} = \frac{3x^2 + 3x - 3}{x(x-1)} = \frac{3(x^2 + x - 1)}{x(x-1)} \end{aligned}$$