

$$f(x) = \frac{1}{x} \quad \text{ED}(f) = \mathbb{R}^* \quad g(x) = \frac{x}{x+1} \quad \text{ED}(g) = \mathbb{R} - \{-1\}$$

$$(g \circ f)(x) = g\left(\underset{\substack{\downarrow \\ x \in \text{ED}(f)}}}{f(x)}\right) = g\left(\underset{\substack{\downarrow \\ e \in \text{ED}(g)}}}{\frac{1}{x}}\right) = \frac{\frac{1}{x}}{\frac{1}{x} + 1} = \frac{\frac{1}{x}}{\frac{1+x}{x}}$$

$$= \frac{1}{x} \cdot \frac{x}{1+x} = \frac{1}{1+x}$$

$$\text{ED}(g \circ f) = \mathbb{R}^* - \{-1\}$$

$$(g \circ g)(x) = g\left(\underset{\substack{\downarrow \\ x \in \text{ED}(g)}}}{g(x)}\right) = g\left(\underset{\substack{\downarrow \\ e \in \text{ED}(g)}}}{\frac{x}{x+1}}\right) = \frac{\frac{x}{x+1}}{\frac{x}{x+1} + 1} = \frac{\frac{x}{x+1}}{\frac{x+x+1}{x+1}}$$

$$= \frac{x}{x+1} \cdot \frac{x+1}{2x+1} = \frac{x}{2x+1}$$

$$\text{ED}(g \circ g) = \mathbb{R} - \{-1; -\frac{1}{2}\}$$