$$f(x)=\frac{x}{x+1} \qquad g(x)=\frac{x-1}{x} \qquad h(x)=\frac{x^2}{1-x}$$

Composition	$f(g(x))$	$g(f(x))$	$f(f(x))$	$g(g(x))$	$f(h(x))$	$g(h(x))$
Replace Inner Function	$=f\left(\frac{x-1}{x}\right)$					
Think about the layout of outside function	$\frac{\square}{\square+1}$					
Insert inner function into layout	$=\frac{\frac{x-1}{x}}{\frac{x-1}{x}+1}$					
Tidy Up	$=\frac{\frac{x-1}{x}}{\frac{x-1}{x}+1}\times x \times x$ $=\frac{x-1}{x-1+x}$ $=\frac{x-1}{2x-1}$					

$$f(x)=\frac{x}{x+1} \qquad g(x)=\frac{x-1}{x} \qquad h(x)=\frac{x^2}{1-x}$$

Composition	$f(g(x))$	$h(g(x))$	$h(f(x))$	$h(h(x))$	$f(f(g(x)))$	$h(f(g(x)))$
Replace Inner Function	$=f\left(\frac{x-1}{x}\right)$					
Think about the layout of outside function	$\frac{\square}{\square+1}$					
Insert inner function into layout	$=\frac{\frac{x-1}{x}}{\frac{x-1}{x}+1}$					
Tidy Up	$=\frac{\frac{x-1}{x}}{\frac{x-1}{x}+1}\times x \times x$ $=\frac{x-1}{x-1+x}$ $=\frac{x-1}{2x-1}$					