Let $\phi = \frac{1+\sqrt{5}}{2}, f(x) \mapsto 1 + \frac{1}{x}$, lets prove that $f(\phi) = \phi$
$f(\phi) = 1 + \frac{1}{\frac{1+\sqrt{5}}{2}} = \frac{1+\sqrt{5}+2}{1+\sqrt{5}}$
$\implies f(\phi) - (\phi) = \frac{1+\sqrt{5}+2}{1+\sqrt{5}} - \frac{1+\sqrt{5}}{2} = \frac{2+2\sqrt{5}+4-1-2\sqrt{5}-5}{2(1+\sqrt{5})} = 0$
$\implies f(\phi) = \phi \blacksquare$