$$f(x|g(x)) = f(g(x)) \, g(x)(1+g(g(x)))$$

$$\boxed{f(x) \cdot (1+g(g(x))) = x(1+g(x))}$$

$$x = \frac{1+g(g(x))}{1+g(x)} \implies$$

Si $\quad f(a) = f(b)$
$$g(a) = g(b)$$
$$\implies a = b$$

porque si $\quad a \neq b$

$$a = \frac{1+g(g(a))}{1+g(a)} = \frac{1+g(g(b))}{1+g(b)} = b \qquad \overset{\nabla}{\circ}$$

$$g(g(x)) = xg(x) + x - 1 \qquad > 0$$
$$x(g(x)+1)$$

Si $\quad x \geq 2$

$$g(g(x)) \geq 2g(x) + 1$$

$$g(g(g(x))) = g(x)\,g(g(x)) + g(x) - 1$$

$$= xg(x)g(x) + xg(x) - 1$$
$$\boxed{x(g(x))^2 + xg(x) - 1}$$

P4 Enunciad Secio 2,

Si ~~g(x)~~ ~~>x~~ ~~B+.~~ ~~f(g(x))~~ ~~≥x~~ ~~>1~~   Si $x>1$ y $g(x)≥1$

$g(g(x)) = x g(x) + x - 1 > \boxed{g(x) ≥ x > 1}$

$≥ g(g(g(x))) ≥ g(g(x))$

$g(g(g(x))) = g(x) g(g(x)) + g(x) - 1 > g(g(x)) > 1$

Entonces va creciendo y contradicción

Entonces para $x > 1$ $\Rightarrow$ $g(x) \not> 1$

posible sol: $f(x) = x+1,$ $g(x) = \frac{1}{x}$

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

$f(x) g(x) = \frac{x+1}{x}$ ⤳ Lo mismo

$x+1 = f(x) = x(1 + \frac{1}{x}) = x(\frac{x+1}{x}) = x \not= 1$ ✓

y $g(x) = \frac{1}{x},$ $g(g(x)) = x,$ ..... $\frac{1}{x}, x, \frac{1}{x}, x ...$

Finita, solo incluye x y $\frac{1}{x}$ □