Solución

$$\frac{\partial}{\partial x}\left(\frac{rx}{1+\frac{r-1}{a}x}\right)=\frac{a^2r}{(a+x(r-1))^2}$$

Pasos

$$\frac{\partial}{\partial x}\left(\frac{rx}{1+\frac{r-1}{a}x}\right)$$

Tratar a, r como constante

Sacar la constante: $(a\cdot f)'=a\cdot f'$

$$=r\frac{\partial}{\partial x}\left(\frac{x}{1+\frac{r-1}{a}x}\right)$$

Aplicar la regla del cociente: $\left(\frac{f}{g}\right)'=\frac{f'\cdot g-g'\cdot f}{g^2}$

$$=r\frac{\frac{\partial}{\partial x}(x)\left(1+\frac{r-1}{a}x\right)-\frac{\partial}{\partial x}\left(1+\frac{r-1}{a}x\right)x}{\left(1+\frac{r-1}{a}x\right)^2}$$

$\frac{\partial}{\partial x}(x)=1$ *Mostrar pasos*

$\frac{\partial}{\partial x}\left(1+\frac{r-1}{a}x\right)=\frac{r-1}{a}$ *Mostrar pasos*

$$=r\frac{1\cdot\left(1+\frac{r-1}{a}x\right)-\frac{r-1}{a}x}{\left(1+\frac{r-1}{a}x\right)^2}$$

Simplificar $r\frac{1\cdot\left(1+\frac{r-1}{a}x\right)-\frac{r-1}{a}x}{\left(1+\frac{r-1}{a}x\right)^2}$: $\frac{a^2r}{(a+x(r-1))^2}$ *Mostrar pasos*

$$=\frac{a^2r}{(a+x(r-1))^2}$$