12. (a) Given that $x(1+t^2)=1$ and $y(1+t^2)=t$, prove that

$$\frac{dy}{dx}=\frac{1}{2}\left(t-\frac{1}{t}\right).$$

[5]

(b) Given that $y=\log(1+x)-x/(1+x)$, find dy/dx and show that y is positive for all positive values of x. [5]