

$$\int_0^x \tan^2(t) dt$$

$$= \int_0^x \frac{\sin^2 t}{\cos^2 t} dt = \int_0^x \frac{\sin^2 t + \cos^2 t - \cos^2 t}{\cos^2 t} dt$$

$$= \int_0^x \left(\frac{1}{\cos^2 t} - 1 \right) dt$$

$$= \left[\tan(t) \right]_0^x - \left[t \right]_0^x$$

$$= \boxed{\tan(x) - x}$$