* * * * *

1 | $\int tan^2x + 1 dx$

$$\int tan^2x + 1 dx = \int sec^2x - 1 + 1 dx$$

$$= \int sec^2x dx$$

Let $u = x, du = 1$

$$= \int sec^2u \, du$$

$$= tanu + C$$

$$= \boxed{tanx + C}$$