

Evaluate  $\int \frac{\sec^2 x}{\sqrt{\tan^2 x + 4}} dx$ .

Answer: Let  $\tan x = t$  then,  $\sec^2 x dx = dt$

$$\begin{aligned} \therefore \int \frac{\sec^2 x}{\sqrt{\tan^2 x + 4}} dx &= \int \frac{dt}{\sqrt{t^2 + 2^2}} \\ &= \log |t + \sqrt{t^2 + 4}| + C \\ &= \log |\tan x + \sqrt{\tan^2 x + 4}| + C \end{aligned}$$