QUESTION

Find $\int \dfrac{\sec^2 x}{1 + \tan x}\, dx$.

ANSWER

$\int \dfrac{\sec^2 x}{1 + \tan x}\, dx = \ln|1 + \tan x| + C$

$\{u = \tan x,\, du = \sec^2 x\, dx;\ \text{therefore } I = \int \dfrac{1}{2} du(u^6) = \dfrac{u^7}{2(7)} + c\}$