$$\int 5\tan^3 x \, \sec x \, dx \quad = 5 \int \tan^2 x \, \sec x \, \tan x \, dx = 5 \int (\sec^2 x - 1) \, \sec x \, \tan x \, dx$$

$$= 5 \int (u^2 - 1) \, du \quad [u = \sec x, \, du = \sec x \, \tan x \, dx \,]$$

$$= \tfrac{5}{3}u^3 - 5u + C = \tfrac{5}{3}\sec^3 x - 5\sec x + C$$