How do I integrate this problem?? $\int(sec2x + tan2x)dx$

Solution:

$$\int(sec2x + tan2x)dx = \int sec2xdx + \int tan2xdx = \int \frac{1}{cos2x}dx + \int \frac{sin2x}{cos2x}dx$$

$$= \int \frac{cos2x}{cos^2 2x}dx + \int \frac{sin2xdx}{cos2x} = \int \frac{cos2xdx}{1 - sin^2 2x}$$

$$+ \frac{1}{2}\int -\frac{d(cos2x)}{cos2x} = \frac{1}{2}\int \frac{d(sin2x)}{(1 - sin2x)(1 + sin2x)} - \frac{1}{2}ln|cos2x| + C_1$$

$$= \frac{1}{2}\left(\int \frac{d(sin2x)}{1 - sin2x} + \int \frac{d(sin2x)}{1 + sin2x}\right) - \frac{1}{2}ln|cos2x| + C_1$$

$$= \frac{1}{2}\left(\int \frac{-d(1 - sin2x)}{1 - sin2x} + \int \frac{d(1 + sin2x)}{1 + sin2x}\right) - \frac{1}{2}ln|cos2x| + C_1$$

$$= \frac{1}{2}(ln|1 + sin2x| - ln|1 - sin2x| - ln|cos2x|) + C$$

$$= \frac{1}{2}ln\left|\frac{1 + sin2x}{(1 - sin2x) * cos2x}\right| + C$$