

**FORMULA 4.388.3**

$$\int_0^{\pi/4} \ln \cos x \frac{\sin^{2n} x}{\cos^{2n+2} x} dx = \frac{1}{2n+1} \left[ -\frac{1}{2} \ln 2 + (-1)^{n+1} \frac{\pi}{4} + \sum_{k=0}^n \frac{(-1)^{k-1}}{2n-2k+1} \right]$$