

C4282

! For an efficient use of these tables, first read [HowTo.pdf](#).

C4282

T2.43A. Integrands involving powers of trigonometric functions and liner trigonometric functions on the interval $(-\pi/4, \pi/4)$.

$$1. \int_0^{\pi/4} \cos^{\mu-1} 2x \tan x \, dx = \frac{1}{4} \left[\psi \left(\frac{\mu+1}{2} \right) - \psi \left(\frac{\mu}{2} \right) \right], \quad \Re\{\mu\} > 0.$$

$$2. \int_0^{\pi/4} \frac{\sin^{2\mu} x \, dx}{\cos^{\mu+1/2} 2x \cos x} = \frac{\pi}{2} \sec \mu\pi, \quad |\Re\{\mu\}| < \frac{1}{2}.$$

$$3. \int_0^{\pi/4} \frac{\sin^{\mu-1/2} 2x \, dx}{\cos^{\mu} 2x \cos x} = \frac{2}{2\mu-1} \cdot \frac{\Gamma(\mu+\frac{1}{2}) \Gamma(1-\mu)}{\sqrt{\pi}} \sin \left(\frac{2\mu-1}{4} \pi \right), \quad -\frac{1}{2} < \Re\{\mu\} < 1.$$

C4282

C4282

C4282

C4282

C4282