

C4282

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

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T2.69E. Integrands involving logarithm functions and powers of logarithm functions and rational functions on the interval $(0, \pi/2)$.

$$1. \int_0^{\pi/2} x^{\mu-1} \ln \sin x \, dx = -\frac{1}{\mu} \left(\frac{\pi}{2}\right)^\mu \left[\frac{1}{\mu} - 2 \sum_{k=1}^{\infty} \frac{\zeta(2k)}{4^k(\mu+2k)} \right], \quad \Re\{\mu\} > 0.$$

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

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