

C4282

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

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**T2.69D.** Integrands involving logarithm functions and powers of logarithm functions and rational functions on the interval  $(0, \pi/4)$ .

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

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