

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

T2.79A. Integrands involving inverse trigonometric and logarithms on the interval $(0, 1)$.

$$1. \int_0^1 \arcsin x \ln x \, dx = 2 - \ln 2 - \frac{\pi}{2}.$$

$$2. \int_0^1 \arccos x \ln x \, dx = \ln 2 - 2.$$

$$3. \int_0^1 \arccos x \frac{dx}{\ln x} = - \sum_{k=0}^{\infty} \frac{(2k-1)!!}{2^k k!} \frac{\ln(2k+2)}{2k+1}.$$

$$4. \int_0^1 \arctan x \ln x \, dx = \frac{1}{2} \ln 2 - \frac{\pi}{4} + \frac{\pi^2}{48}.$$

$$5. \int_0^1 \operatorname{arccot} x \ln x \, dx = -\frac{1}{2} \ln 2 - \frac{\pi}{4} - \frac{\pi^2}{48}.$$

$$6. \int_0^1 \arctan x (\ln x)^{n-1} (\ln x + n) \, dx = \frac{n!}{(-2)^{n+1}} (2^{-n} - 1) \zeta(n+1).$$
