

C4282

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

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T2.45F. Integrands involving powers of linear trigonometric functions on the interval $(0, y)$.

$$1. \int_0^y (\cos x - \cos y)^{\nu-1/2} \cos ax \, dx = \sqrt{\frac{\pi}{2}} \sin^\nu y \, \Gamma\left(\nu + \frac{1}{2}\right) P_{a-1/2}^{(-\nu)}(\cos y),$$

$$\Re\{\nu\} > -\frac{1}{2}; \, a > 0, \, 0 < y < \pi.$$

$$2. \int_0^y (\cos x - \cos y)^{\nu-1} \cos[(\nu + \beta)x] \, dx = \frac{\sqrt{\pi} \Gamma(\beta + 1) \Gamma(\nu) \Gamma(2\nu) \sin^{2\nu-1} y}{2^\nu \Gamma(\beta + 2\nu) \Gamma(\nu + \frac{1}{2})} C_\beta^\nu(\cos y),$$

$$\Re\{\nu\} > 0, \, \Re\{\beta\} > -1, \, 0 < y < \pi.$$

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