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

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T2.55C. Integrands involving product of trigonometric functions of linear and quadratic arguments and sum of powers and square roots of $(a + b x^n)$ on the interval $(0, \pi/2)$.

$$1. \int_0^{\pi/2} x \sin(a \tan x) dx = \frac{\pi}{4} e^{-a} [\gamma_e + \ln 2a - e^{2a} \text{Ei}(-2a)], \quad a > 0.$$

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$$2. \int_0^{\pi/2} \cos(a \tan x) \frac{x dx}{\sin 2x} = -\frac{\pi}{4} \text{Ei}(-a), \quad a > 0.$$

$$3. \int_0^{\pi/2} \sin(a \cot x) \frac{x dx}{\sin^2 x} = \frac{1 - e^{-a}}{2a} \pi, \quad a > 0.$$

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$$4. \int_0^{\pi/2} x \cos(a \tan x) \tan x dx = -\frac{\pi}{4} e^{-a} [\gamma_e + \ln 2a + e^{2a} \text{Ei}(-2a)], \quad a > 0.$$

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