! For an efficient use of these tables, first read `HowTo.pdf`.

T2.59B. Integrands involving product of trigonometric functions, exponentials and powers of x and $1/x$ on the interval $(0, \pi/2)$.

1. $$\int_0^{\pi/2} e^{-p\,\tan x}\,\frac{x\,dx}{\cos^2 x} = \frac{1}{p}\,\left[\sin p\ \mathrm{Ci}\,(p) - \cos p\ \mathrm{Si}\,(p)\right], \quad p > 0.$$

2. $$\int_0^{\pi/2} x e^{-\tan^2 x}\,\sin 4x \frac{dx}{\cos^2 x} = -\frac{3}{2}\sqrt{\pi}.$$

3. $$\int_0^{\pi/2} x e^{-\tan^2 x}\,\sin^2 2x \frac{dx}{\cos^2 x} = 2\sqrt{\pi}.$$

4. $$\int_0^{\pi/2} x e^{-p\,\tan x}\,\frac{p\,\sin x - \cos x}{\cos^3 x}\,dx = -\sin p\ \mathrm{Si}\,(p) - \cos p\ \mathrm{Ci}\,(p), \quad p > 0.$$

5. $$\int_0^{\pi/2} x e^{-p\,\tan^2 x}\,\frac{p - \cos^2 x}{\cos^4 x\,\cot x}\,dx = \frac{1}{4}\sqrt{\frac{\pi}{p}}, \quad p > 0.$$

6. $$\int_0^{\pi/2} x e^{-p\,\tan^2 x}\,\frac{p - 2\,\cos^2 x}{\cos^6 x\,\cot x}\,dx = \frac{1 + 2p}{8p}\sqrt{\frac{\pi}{p}}, \quad p > 0.$$
