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

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**T3.62A.** Integrands involving inverse trigonometric functions and exponentials on the interval  $(0, \infty)$ .

$$1. \int_0^\infty \left( \arctan \frac{x}{a} \right) e^{-bx} dx = \frac{1}{b} [\operatorname{Ci}(ab) \sin(ab) - \operatorname{Si}(ab) \cos(ab)], \quad \Re\{b\} > 0.$$

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$$2. \int_0^\infty \left( \operatorname{arccot} \frac{x}{a} \right) e^{-bx} dx = \frac{1}{b} \left[ \frac{\pi}{2} - \operatorname{Ci}(ab) \sin(ab) + \operatorname{Si}(ab) \cos(ab) \right], \quad \Re\{b\} > 0.$$

$$3. \int_0^\infty \frac{\arctan(x/q)}{e^{2\pi x} - 1} dx = \frac{1}{2} \left[ \ln \Gamma(q) - \left( q - \frac{1}{2} \right) \ln q + q - \frac{1}{2} \ln 2\pi \right], \quad q > 0.$$

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$$4. \int_0^\infty \left( \frac{2}{\pi} \operatorname{arccot} x - e^{-px} \right) \frac{dx}{x} = \gamma_e + \ln p, \quad p > 0.$$

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