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

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**T3.54C.** Integrands involving logarithm functions and powers of logarithm functions and rational functions on the interval  $(-\infty, \infty)$ .

$$1. \int_{-\infty}^{\infty} \ln(a^2 - 2ax \cos t + x^2) \frac{dx}{1+x^2} = \pi \ln(1 + 2a|\sin t| + a^2).$$

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$$2. \int_{-\infty}^{\infty} \ln \left| \frac{1 + 2\sqrt{1+x^2}}{1 - 2\sqrt{1+x^2}} \right| \frac{dx}{\sqrt{1+x^2}} = \pi^2/3.$$

$$3. \int_{-\infty}^{\infty} x \ln \cosh x \, dx = 0.$$

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