ENTRIES IN PART 1

3.419.2 $$\int_{\infty}^{\infty} \frac{x\,dx}{(b+e^x)(1-e^{-x})} = \frac{\pi^2+\ln^2 b}{2(b+1)}$$

3.419.3 $$\int_{\infty}^{\infty} \frac{x^2\,dx}{(b+e^x)(1-e^{-x})} = \frac{\left[\pi^2+\ln^2 b\right]\,\ln b}{3(b+1)}$$

3.419.4 $$\int_{\infty}^{\infty} \frac{x^3\,dx}{(b+e^x)(1-e^{-x})} = \frac{\left[\pi^2+\ln^2 b\right]^2}{4(b+1)}$$

3.419.5 $$\int_{\infty}^{\infty} \frac{x^4\,dx}{(b+e^x)(1-e^{-x})} = \frac{\left[\pi^2+\ln^2 b\right]^2\left[7\pi^2+3\ln^2 b\right]\ln b}{15(b+1)}$$

3.419.6 $$\int_{\infty}^{\infty} \frac{x^5\,dx}{(b+e^x)(1-e^{-x})} = \frac{\left[\pi^2+\ln^2 b\right]^2\left[3\pi^2+\ln^2 b\right]}{6(b+1)}$$

4.229.4 $$\int_0^1 \ln\left(\ln\frac{1}{x}\right)\left(\ln\frac{1}{x}\right)^{\mu-1}\,dx = \psi(\mu)\Gamma(\mu)$$

4.229.7 $$\int_{\pi/4}^{\pi/2} \ln\ln\tan x\,dx = \frac{\pi}{2}\ln\left(\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right)$$

4.232.3 $$\int_0^{\infty} \frac{\ln x}{x+a}\,\frac{dx}{x-1} = \frac{\pi^2+\ln^2 a}{2(a+1)}$$

4.261.4 $$\int_0^{\infty} \frac{\ln^2 x}{x+a}\,\frac{dx}{x-1} = \frac{\left[\pi^2+\ln^2 a\right]\ln a}{3(a+1)}$$

4.262.3 $$\int_0^{\infty} \frac{\ln^3 x}{x+a}\,\frac{dx}{x-1} = \frac{\left[\pi^2+\ln^2 a\right]^2}{4(a+1)}$$

4.263.1 $$\int_0^{\infty} \frac{\ln^4 x}{x+a}\,\frac{dx}{x-1} = \frac{\left[\pi^2+\ln^2 a\right]\left[7\pi^2+3\ln^2 a\right]\,\ln a}{15(a+1)}$$

4.264.3 $$\int_0^{\infty} \frac{\ln^5 x}{x+a}\,\frac{dx}{x-1} = \frac{\left[\pi^2+\ln^2 a\right]^2\left[3\pi^2+\ln^2 a\right]}{6(a+1)}$$