

PROOF OF FORMULA 4.291.6

$$\int_0^1 \frac{\ln(1+x)}{1+x} dx = \frac{\ln^2 2}{2}$$

Integrating by parts with $u = \ln(1+x)$ and $dv = dx/(1+x)$ yields

$$\int_0^1 \frac{\ln(1+x)}{1+x} dx = \ln^2 2 - \int_0^1 \frac{\ln(1+x)}{1+x} dx.$$

This gives the result.