FORMULA 4.231.17

$$\int_0^1 \ln x \, \frac{1 + (-1)^n x^{n+1}}{(1+x)^2} \, dx = -(n+1)\frac{\pi^2}{12} - \sum_{k=1}^{n}(n-k+1)\frac{(-1)^k}{k^2}$$