

**PROOF OF FORMULA 4.271.11**

$$\int_0^1 (\ln x)^{2n-1} \frac{x dx}{1-x^2} = -\frac{1}{4n} |B_{2n}| \pi^{2n}$$

Let  $t = x^2$  to obtain

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

The result now follows from entry **4.271.3**:

$$\int_0^1 \frac{(\ln t)^{2n-1}}{1-t} dt = -\frac{2^{2n-2}}{n} |B_{2n}| \pi^{2n}.$$