

$$\text{Pi} \cdot \int_0^1 \arctan(y)^2 dy$$

$$\pi \left(\frac{1}{16} \pi^2 + \frac{1}{4} \pi \ln(2) - \text{Catalan} \right) \quad (1)$$

evalf(%)

$$0.7705736280 \quad (2)$$

$$2 \cdot \text{Pi} \cdot \int_0^{\frac{\text{Pi}}{4}} x \cdot (1 - \tan(x)) dx$$

$$2 \pi \left(\frac{1}{8} \pi \ln(2) - \frac{1}{2} \text{Catalan} + \frac{1}{32} \pi^2 \right) \quad (3)$$

evalf(%)

$$0.7705736280 \quad (4)$$