1. Walli's Formula.

$$\int_0^{\pi/2} \sin^n x dx = \int_0^{\pi/2} \cos^n x dx = \begin{cases} \frac{n-1}{n} \cdot \frac{n-3}{n-2} \cdot \frac{n-5}{n-4} \ldots\ldots \frac{2}{3}, & \text{when } n \text{ is odd} \\ \frac{n-1}{n} \cdot \frac{n-3}{n-2} \cdot \frac{n-5}{n-4} \ldots\ldots \frac{3}{4} \cdot \frac{1}{2} \cdot \frac{\pi}{2}, & \text{when } n \text{ is even} \end{cases}$$

$\int_0^{\pi/2} \sin^m x \cos^n dx = \frac{(m-1)(m-3)\ldots\ldots\ldots.(n-1)(n-3)\ldots\ldots\ldots}{(m+n)(m+n-2)}$ [If m, n are both odd +ve integers or one odd +ve integer]

$= \frac{(m-1)(m-3)\ldots\ldots\ldots\ldots(n-1)(n-3)}{(m+n)(m+n-2)} \cdot \frac{\pi}{2}$ [If m, n are both +ve integers]