$$\int_0^{\pi/2} \cos^n x dx = \prod_{q=1}^{n/2} \frac{2q-1}{2q} \text{ if n is even and n} \geq 2$$

$$\int_0^{\pi/2} \cos^n x dx = \prod_{q=1}^{(n-1)/2} \frac{2q}{2q+1} \text{ if n is odd and n} \geq 3$$

Kronecker's Rule: Let p(x) be a polynomial in x of degree m, and f(x) a continuous function. Let $F_1 = \int f(x)dx$, $F_2 = \int F_1(x)dx$, …, $F_{m+1} = \int F_m(x)dx$. And let $p^j(x)$ be the j-th derivative of p(x). Then

$$\int p(x) f(x)dx = \sum_{j=0}^{m} (-1)^j p^j(x) F_{j+1}(x) + \text{C}$$