Física Quântica / Interações Atômicas e Moleculares: Integrais Úteis

$\int \operatorname{sen}^2 x \, dx = \frac{1}{2}\left(x - \frac{\operatorname{sen} 2x}{2}\right) + C = \frac{1}{2}(x - \operatorname{sen} x \cos x) + C$

$\int \cos^2 x \, dx = \frac{1}{2}\left(x + \frac{\operatorname{sen} 2x}{2}\right) + C = \frac{1}{2}(x + \operatorname{sen} x \cos x) + C$

$\int \operatorname{sen} x \cos x \, dx = -\frac{1}{4}\cos 2x + C$

$\int_0^\infty x^n \, e^{-x} \, dx = n!$

$\int_{-\infty}^\infty e^{-x^2} \, dx = \frac{1}{2}\sqrt{\pi}$

$\int_{-\infty}^\infty x^2 \, e^{-x^2} \, dx = \frac{1}{4}\sqrt{\pi}$

geral: $\int_{-\infty}^\infty x^n \, e^{-x^2} \, dx = \begin{cases} \frac{n!}{(n/2)! \, 2^{n+1}}\sqrt{\pi} & \text{para } n \text{ par} \\ 0 & \text{para } n \text{ impar} \end{cases}$