Item Navigation

Gaussian Integral

Compute the Gaussian integral given by $I = \int_{-\infty}^{\infty} e^{-x^2}\,dx$. Use the well-known trick

$$I^2 = \left(\int_{-\infty}^{\infty} e^{-x^2}\,dx\right)^2 = \int_{-\infty}^{\infty} e^{-x^2}\,dx \int_{-\infty}^{\infty} e^{-y^2}\,dy = \int_{-\infty}^{\infty}\int_{-\infty}^{\infty} e^{-(x^2+y^2)}\,dx\,dy.$$

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