

Integrale definite in Mathematica

Two screenshots of the WolframAlpha search interface showing definite and indefinite integrals.

Screenshot 1: Definite Integral

Search query: $\text{Integral}(\text{Sqrt}[1+t^2], t=0..1)$

Result:

- Definite integral: $\int_0^1 \sqrt{1+t^2} dt = \frac{1}{2} (\sqrt{2} + \sinh^{-1}(1)) \approx 1.1478$
- Visual representation of the integral: A graph showing the area under the curve $y = \sqrt{1+t^2}$ from $t=0$ to $t=1$.
- Indefinite integral: $\int \sqrt{1+t^2} dt = \frac{1}{2} (t \sqrt{1+t^2} + \sinh^{-1}(t)) + C$

Screenshot 2: Indefinite Integral

Search query: $\text{Integral}(\text{Sin}[t]*\text{Exp}[-t^2], t=0..\text{Pi})$

Result:

- Definite integral: $\int_0^\pi \sin(t) \exp(-t^2) dt = -\frac{\sqrt{\pi} (-2 \operatorname{erfi}\left(\frac{1}{2}\right) + \operatorname{erfi}\left(\frac{1-i \pi}{2}\right) + \operatorname{erfi}\left(\frac{1+i \pi}{2}\right))}{4 \sqrt[4]{e}} \approx 0.424438$
- Visual representation of the integral: A graph showing the area under the curve $y = \sin(t) \exp(-t^2)$ from $t=0$ to $t=\pi$.
- Indefinite integral: $\int \sin(t) \exp(-t^2) dt = -\frac{\sqrt{\pi} (\operatorname{erfi}\left(\frac{1}{2}-i t\right) + \operatorname{erfi}\left(\frac{1}{2}+i t\right))}{4 \sqrt[4]{e}} + \text{constant}$