

16.10: Definite integrals

- $\int_0^{\infty} x e^{-x^2} dx = \frac{1}{2}$
- $\int_0^{\infty} e^{-ax} dx = \frac{1}{a}, a > 0$
- $\int_0^{\infty} \sqrt{x} e^{-ax} dx = \frac{1}{2a} \sqrt{\frac{\pi}{a}}$
- $\int_0^{\infty} x^{2n+1} e^{-ax^2} dx = \frac{n!}{2a^{n+1}}, a > 0$
- $\int_0^{\infty} x^{2n} e^{-ax^2} dx = \frac{1.3.5 \dots (2n-1)}{2^{n+1} a^n} \sqrt{\frac{\pi}{a}}$
- $\int_0^{\infty} x^n e^{-ax} dx = \frac{n!}{a^{n+1}}, a > 0, n \text{ positive integer}$

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