

INTEGRATION BY PARTS

In integration by parts, you can use the acronym "ILATE" to help you remember which function to integrate first. Here's how it works.

I – Inverse trigonometric functions (arcsin, arccos etc.)

L – Logarithmic functions (ln, log)

A – Algebraic functions (polynomials, radicals)

T - Trigonometric functions (sin, cos, tan)

E – Exponential functions (e^x)

1. $\int x \ln x \, dx, u = \ln x$

2. $\int x \sin x \, dx, u = x$

3. $\int \sec^3 x \, dx$

4. $\int x^2 \sin x \, dx$

5. $\int x \cos x \, dx$

6. $\int x^2 \cos x \, dx$

7. $\int x e^x \, dx$

8. $\int x e^{x^2} \, dx$

9. $\int \sin^2 x \, dx$

10. $\int \ln x \, dx$