

LA INTEGRAL

$\forall u = f(x), \forall v = g(x), \forall c, e, n \in \mathbb{R}, a \in \mathbb{R}^+ - \{1\}, e = 2.7182818284\ 5904523536\ 0287471352 \dots$

$$1. \int c f(u) du = c \int f(u) du$$

$$17. \int \cos^2(u) du = \frac{u}{2} + \frac{\text{sen}(2u)}{4} + C$$

$$2. \int f(u) \pm g(u) du = \int f(u) du \pm \int g(u) du$$

$$18. \int \tan^2(u) du = \tan(u) - u + C$$

$$3. \int du = u + C$$

$$19. \int \cot^2(u) du = -\cot(u) - u + C$$

$$4. \int u^n du = \frac{u^{n+1}}{n+1} + C, \quad n \neq -1$$

$$20. \int \sec^2(u) du = \tan(u) + C$$

$$5. \int a^u du = \frac{a^u}{\ln(a)} + C$$

$$21. \int \csc^2(u) du = -\cot(u) + C$$

$$6. \int e^u du = e^u + C$$

$$22. \int \frac{1}{u^2 + a^2} du = \frac{1}{a} \arctan\left(\frac{u}{a}\right) + C$$

$$7. \int \frac{1}{u} du = \ln|u| + C$$

$$23. \int \frac{1}{u^2 - a^2} du = \frac{1}{2a} \ln\left(\frac{u-a}{u+a}\right) + C$$

$$8. \int \text{sen}(u) du = -\cos(u) + C$$

$$24. \int \frac{1}{\sqrt{a^2 - u^2}} du = \arcsen\left(\frac{u}{a}\right) + C$$

$$9. \int \cos(u) du = \text{sen}(u) + C$$

$$25. \int \frac{du}{\sqrt{u^2 + a^2}} = \ln\left(u + \sqrt{u^2 + a^2}\right) + C$$

$$10. \int \tan(u) du = -\ln|\cos(u)| + C$$

$$26. \int \frac{du}{\sqrt{u^2 - a^2}} = \ln\left(u + \sqrt{u^2 - a^2}\right) + C$$

$$11. \int \cot(u) du = \ln|\text{sen}(u)| + C$$

$$27. \int \arcsen(u) du = u \arcsen(u) + \sqrt{1 - u^2} + C$$

$$12. \int \sec(u) du = \ln|\sec(u) + \tan(u)| + C$$

$$28. \int \arccos(u) du = u \arccos(u) - \sqrt{1 - u^2} + C$$

$$13. \int \csc(u) du = \ln|\csc(u) - \cot(u)| + C$$

$$29. \int \arctan(u) du = u \arctan(u) - \ln(\sqrt{1 + u^2})$$

$$14. \int \sec(u) \tan(u) du = \sec(u) + C$$

$$30. \int \text{arccot}(u) du = u \text{arccot}(u) + \ln(\sqrt{1 + u^2})$$

$$15. \int \csc(u) \cot(u) du = -\csc(u) + C$$

$$31. \int \text{arcsec}(u) du = u \text{arcsec}(u) - \ln(u + \sqrt{u^2 - 1})$$

$$16. \int \text{sen}^2(u) du = \frac{u}{2} - \frac{\text{sen}(2u)}{4} + C$$

$$32. \int \text{arccsc}(u) du = u \text{arccsc}(u) + \ln(u + \sqrt{u^2 - 1})$$

Integración por Partes

$$\int u dv = uv - \int v du$$