FORMULARIO # 1

1. $\int du = u + C$

2. $\int a\ du = au + C$ donde a es cualquier constante

3. $\int [f(u) + g(u)]\ du = \int f(u)\ du + \int g(u)\ du$

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

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

6. $\int a^u\ du = \frac{a^u}{\ln a} + C$ donde $a > 0$ y $a \neq 1$

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

8. $\int \operatorname{sen} u\ du = -\cos u + C$

9. $\int \cos u\ du = \operatorname{sen} u + C$

10. $\int \sec^2 u\ du = \tan u + C$

11. $\int \csc^2 u\ du = -\cot u + C$

12. $\int \sec u \tan u\ du = \sec u + C$

13. $\int \csc u \cot u\ du = -\csc u + C$

14. $\int \tan u\ du = \ln|\sec u| + C$

15. $\int \cot u\ du = \ln|\operatorname{sen} u| + C$

16. $\int \sec u\ du = \ln|\sec u + \tan u| + C$

17. $\int \csc u\ du = \ln|\csc u - \cot u| + C$

18. $\displaystyle\int \frac{du}{\sqrt{a^2 - u^2}} = \operatorname{sen}^{-1}\frac{u}{a} + C \qquad \text{donde } a > 0$

19. $\displaystyle\int \frac{du}{a^2 + u^2} = \frac{1}{a}\tan^{-1}\frac{u}{a} + C \qquad \text{donde } a \neq 0$

20. $\displaystyle\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a}\sec^{-1}\frac{u}{a} + C \qquad \text{donde } \quad a > 0$

21. $\displaystyle\int \operatorname{senh} u\, du = \cosh u + C$

22. $\displaystyle\int \cosh u\, du = \operatorname{senh} u + C$

23. $\displaystyle\int \operatorname{sech}^2 u\, du = \tanh u + C$

24. $\displaystyle\int \operatorname{csch}^2 u\, du = -\coth u + C$

25. $\displaystyle\int \operatorname{sech} u \tanh u\, du = -\operatorname{sech} u + C$

26. $\displaystyle\int \operatorname{csch} u \coth u\, du = -\operatorname{csch} u + C$

27. $\displaystyle\int \frac{du}{\sqrt{u^2 + a^2}} = \operatorname{senh}^{-1}\frac{u}{a} + C$

$$= \ln(u + \sqrt{u^2 + a^2}) + C \quad \text{si } a > 0$$

28. $\displaystyle\int \frac{du}{\sqrt{u^2 - a^2}} = \cosh^{-1}\frac{u}{a} + C$

$$= \ln(u + \sqrt{u^2 - a^2}) + C \quad \text{si } u > a > 0$$

29. $\displaystyle\int \frac{du}{a^2 - u^2} = \begin{cases} \dfrac{1}{a}\tanh^{-1}\dfrac{u}{a} + C & \text{si } |u| < a \\[2ex] \dfrac{1}{a}\coth^{-1}\dfrac{u}{a} + C & \text{si } |u| > a \end{cases}$

$$= \frac{1}{2a}\ln\left|\frac{a + u}{a - u}\right| + C \quad \text{si } u \neq a \text{ y } a \neq 0$$