

# Tabla de integrales

## Integración Directa

- $\int [(1+x)^3] dx = x + \frac{3}{2}x^2 + x^3 + \frac{1}{4}x^4$
- $\int \left[3\sqrt{x} + \frac{6}{x^7}\right] dx = -\frac{1}{x^6} + 2x^{\frac{3}{2}}$
- $\int \left[\frac{1+x+x^2}{x}\right] dx = x + \log(x) + \frac{1}{2}x^2$
- $\int [\cos^{-2}(x) + 4e^x] dx = \frac{\sin(x)}{\cos(x)} + 4e^x$
- $\int [4\sqrt[3]{x} + x^{\frac{4}{5}}] dx = 3x^{\frac{4}{3}} + \frac{5}{9}x^{\frac{9}{5}}$
- $\int \left[\frac{1-x+x^2}{\sqrt{x}}\right] dx = 2\sqrt{x} - \frac{2}{3}x^{\frac{3}{2}} + \frac{2}{5}x^{\frac{5}{2}}$
- $\int [e^e + x^e + e^x] dx = \frac{x^{1+e}}{1+e} + xe^e + e^x$

## Sustitución

- $\int [x^3 \cos(5+x^4)] dx = \frac{1}{4} \sin(5+x^4)$
- $\int [2x^2 \sqrt{1+x^3}] dx = \frac{4}{9} (1+x^3)^{\frac{3}{2}}$
- $\int \left[\frac{x}{\sqrt{1-4x^2}}\right] dx = -\frac{1}{4} \sqrt{1-4x^2}$
- $\int [\sin^5(x) \cos(x)] dx = \frac{1}{6} \sin^6(x)$
- $\int [\sqrt{4+e^x} e^x] dx = \frac{2}{3} (4+e^x)^{\frac{3}{2}}$
- $\int \left[\frac{1+x}{1+x^2}\right] dx = \frac{1}{2} \log(1+x^2) + \operatorname{atan}(x)$
- $\int \left[\frac{x}{1+x^4}\right] dx = \frac{1}{2} \operatorname{atan}(x^2)$
- $\int \left[-\frac{1-3x}{(-2x+3x^2)^3}\right] dx = -\frac{1}{16x^2 - 48x^3 + 36x^4}$
- $\int \left[\frac{1+e^x}{x+e^x}\right] dx = \log(x+e^x)$
- $\int \left[\frac{1}{x\sqrt{\log(x)}}\right] dx = 2\sqrt{\log(x)}$

## Partes

- $\int [(1+x)^2 e^x] dx = x^2 e^x + e^x$
- $\int [x^2 \sin(x)] dx = 2 \cos(x) - x^2 \cos(x) + 2x \sin(x)$
- $\int [\log(x)] dx = -x + x \log(x)$
- $\int [\log^2(x)] dx = 2x - 2x \log(x) + x \log^2(x)$
- $\int [\log(5x^4)] dx = -4x + x \log(5) + 4x \log(x)$
- $\int [\cos(x) e^x] dx = \frac{1}{2} e^x \sin(x) + \frac{1}{2} \cos(x) e^x$
- $\int [\sin(\sqrt{x})] dx = 2 \sin(\sqrt{x}) - 2\sqrt{x} \cos(\sqrt{x})$
- $\int [x^5 \cos(x^3)] dx = \frac{1}{3} \cos(x^3) + \frac{1}{3} x^3 \sin(x^3)$
- $\int [e^{\sqrt{x}}] dx = -2e^{\sqrt{x}} + 2\sqrt{x} e^{\sqrt{x}}$
- $\int [\operatorname{atan}(x)] dx = x \operatorname{atan}(x) - \frac{1}{2} \log(1+x^2)$

## Integrales Trigonómicas

- $\int [\cos^3(x)] dx = \sin(x) - \frac{1}{3} \sin^3(x)$
- $\int [\cos^4(x) \sin^5(x)] dx = -\frac{1}{5} \cos^5(x) + \frac{2}{7} \cos^7(x) - \frac{1}{9} \cos^9(x)$
- $\int [\cos^2(x) \sin^2(x)] dx = \frac{1}{8}x - \frac{1}{16} \cos(2x) \sin(2x)$
- $\int [\tan^2(x)] dx = -x + \tan(x)$
- $\int [\tan^3(x) \sec(x)] dx = \frac{1}{3} \sec^3(x) - \sec(x)$

## Sustitución Trigonométrica

- $\int \left[\frac{1}{x^2 \sqrt{x^2-4}}\right] dx = \frac{\sqrt{x^2-4}}{4x}$
- $\int [\sqrt{1-x^2}] dx = \frac{1}{2} \operatorname{asin}(x) + \frac{1}{2} x \sqrt{1-x^2}$
- $\int \left[\frac{\sqrt{9-x^2}}{x^2}\right] dx = -\operatorname{asin}\left(\frac{1}{3}x\right) - \frac{\sqrt{9-x^2}}{x}$
- $\int [(1+x^2)^{-2}] dx = \frac{1}{2} \operatorname{atan}(x) + \frac{x}{2+2x^2}$
- $\int \left[(1-x^2)^{\frac{3}{2}}\right] dx = \frac{3}{8} \operatorname{asin}(x) + \frac{3}{8} x^3 \sqrt{1-x^2} + \frac{5}{8} x (1-x^2)^{\frac{3}{2}}$

## Fracciones Parciales

- $\int \left[-\frac{2}{4-3x-x^2}\right] dx = -\frac{2}{5} \log(4+x) + \frac{2}{5} \log(-1+x)$
- $\int \left[\frac{4-x+2x^2}{4x+x^3}\right] dx = \frac{1}{2} \log(4+x^2) - \frac{1}{2} \operatorname{atan}\left(\frac{1}{2}x\right) + \log(x)$
- $\int \left[-\frac{10}{(1-x)(9+x^2)}\right] dx = -\frac{1}{2} \log(9+x^2) - \frac{1}{3} \operatorname{atan}\left(\frac{1}{3}x\right) + \log(-1+x)$
- $\int \left[\frac{1+2x+x^2+x^3}{(1+x^2)(2+x^2)}\right] dx = \frac{1}{2} \log(1+x^2) + \frac{1}{2} \sqrt{2} \operatorname{atan}\left(\frac{1}{2}x\sqrt{2}\right)$
- $\int \left[\frac{4+x^3}{4+x^2}\right] dx = -2 \log(4+x^2) + 2 \operatorname{atan}\left(\frac{1}{2}x\right) + \frac{1}{2}x^2$