

EJERCICIOS DE INTEGRACIÓN INMEDIATA Y POR SUSTITUCIÓN

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|---|--|
| 1) $\int \frac{2^x}{3^x} dx$ | Sol: $\frac{2^x}{3^x (\ln 2 - \ln 3)} + C$ |
| 2) $\int e^{e^x} \cdot e^x dx$ | Sol: $e^{e^x} + C$ |
| 3) $\int x e^{-x^2} dx$ | Sol: $-\frac{1}{2} e^{-x^2} + C$ |
| 4) $\int \frac{1}{9+x^2} dx$ | Sol: $\frac{1}{3} \operatorname{arctg} \frac{x}{3} + C$ |
| 5) $\int \frac{dx}{\sqrt{25-x^2}}$ | Sol: $\frac{1}{5} \operatorname{arcsen} \frac{x}{5} + C$ |
| 6) $\int (\operatorname{tg} x)^2 dx$ | Sol: $-x + \operatorname{tg} x + C$ |
| 7) $\int \frac{dx}{1-x}$ | Sol: $-\ln(1-x) + C$ |
| 8) $\int \cot \frac{x}{3} dx$ | Sol: $3 \ln \left(\operatorname{sen} \frac{x}{3} \right) + C$ |
| 9) $\int \left(\operatorname{tg} 4x - \cot \frac{x}{4} \right) dx$ | Sol: $-\frac{1}{4} \ln(\cos 4x) - 4 \ln \left(\operatorname{sen} \frac{x}{4} \right) + C$ |
| 10) $\int \operatorname{sen}^2 x \cdot \cos x dx$ | Sol: $\frac{\operatorname{sen}^3 x}{3} + C$ |
| 11) $\int \frac{\operatorname{tg} x}{\cos^2 x} dx$ | Sol: $\frac{\operatorname{tg}^2 x}{2} + C$ |
| 12) $\int \frac{\ln(x+1)}{x+1} dx$ | Sol: $\frac{\ln^2(x+1)}{2} + C$ |
| 13) $\int \frac{\ln^2 x}{x} dx$ | Sol: $\frac{\ln^3 x}{3} + C$ |
| 14) $\int \frac{\operatorname{arctg} x}{1+x^2} dx$ | Sol: $\frac{(\operatorname{arctg} x)^2}{2} + C$ |
| 15) $\int \frac{x}{x^2+1} dx$ | Sol: $\frac{1}{2} \ln(x^2+1) + C$ |
| 16) $\int \frac{dx}{\cos^2 7x}$ | Sol: $1/7 \operatorname{tg} 7x + C$ |
| 17) $\int \frac{e^x + e^{2x} + e^{3x}}{e^{4x}} dx$ | Sol: $-\frac{1}{3} e^{-3x} - \frac{1}{2} e^{-2x} - e^{-x} + C$ |
| 18) $\int \frac{dx}{x \cdot \ln x}$ | Sol: $\ln(\ln x) + C$ |
| 19) $\int \frac{\cot x}{\operatorname{sen}^2 x} dx$ | Sol: $-\frac{\cot^2 x}{2} + C$ |

20) $\int x \cdot \sqrt{x^2 + 1} \, dx$

Sol: $\frac{1}{3} \sqrt{(x^2 + 1)^3} + C$

21) $\int \frac{\cos 2x}{2 + 3 \operatorname{sen} 2x} \, dx$

Sol: $\frac{1}{6} \ln(2 + 3 \operatorname{sen} 2x) + C$

22) $\int a^{x^2} \cdot x \, dx$

Sol: $\frac{a^{x^2}}{2 \ln a} + C$

23) $\int (e^{2x})^2 \, dx$

Sol: $\frac{1}{4} e^{4x} + C$

24) $\int e^{x^2+4x+3} (x+2) \, dx$

Sol: $\frac{1}{2} e^{x^2+4x+3} + C$

25) $\int \frac{e^{2x}}{2 + e^{2x}} \, dx$

Sol: $\frac{1}{2} \ln(2 + e^{2x}) + C$

26) $\int \frac{dx}{\sqrt{1-3x^2}}$

Sol: $\frac{1}{\sqrt{3}} \operatorname{arcsen}(\sqrt{3}x) + C$

27) $\int \frac{dx}{\sqrt{3-5x^2}}$

Sol: $\frac{1}{\sqrt{5}} \operatorname{arcsen}\left(\sqrt{\frac{5}{3}}x\right) + C$

28) $\int \frac{e^x}{\sqrt{1-e^{2x}}} \, dx$

Sol: $\operatorname{arcsen}(e^x) + C$

29) $\int \frac{e^x}{(e^x + 4)^2} \, dx$

Sol: $\frac{-1}{e^x + 4} + C$

30) $\int \frac{\cos x}{1 + \operatorname{sen}^2 x} \, dx$

Sol: $\operatorname{arctg}(\operatorname{sen} x) + C$

31) $\int \frac{2x+1}{x^2+x+4} \, dx$

Sol: $\ln(x^2+x+4) + C$

32) $\int 3^{-1/x} \cdot \frac{1}{x^2} \, dx$

Sol: $\frac{3^{-1/x}}{\ln 3} + C$

33) $\int \frac{dx}{\sqrt{2x-x^2}}$

Sol: $2 \operatorname{arcsen}\left(\sqrt{\frac{x}{2}}\right) + C$

34) $\int \frac{\operatorname{sen}^3 x}{\cos x} \, dx$

Sol: $\frac{\cos^2 x}{2} - \ln(\cos x) + C$

35) $\int \frac{\sqrt{1+\ln x}}{x} \, dx$

Sol: $\frac{2}{3} \sqrt{(1+\ln x)^3} + C$

36) $\int \frac{\sqrt{x-1}}{2x} \, dx$

Sol: $\sqrt{x-1} - \operatorname{arctg}(\sqrt{x-1}) + C$

37) $(x-1)\sqrt{x^2-2x} \, dx$

Sol: $\frac{1}{3} \sqrt{(x^2-2x)^3} + C$

38) $\int \frac{dx}{\sqrt{x}\sqrt{1+\sqrt{x}}}$

Sol: $4\sqrt{1+\sqrt{x}} + C$

39) $\int \frac{dx}{2 \operatorname{sen}^2 x + 3 \cos^2 x}$

Sol: $\frac{1}{\sqrt{6}} \operatorname{arctg}\left(\sqrt{\frac{2}{3}} \operatorname{tg} x\right) + C$

40) $\int e^x \operatorname{sen} e^x \, dx$

Sol: $-\cos e^x + C$