

Sugestão de Exercícios – Lista 1 – Métodos de Integração

Calcular as integrais seguintes usando o método da substituição.

1.  $\int (2x^2 + 2x - 3)^{10} (2x + 1) dx$

2.  $\int (x^3 - 2)^{1/7} x^2 dx$

3.  $\int \frac{x dx}{\sqrt[5]{x^2 - 1}}$

4.  $\int 5x \sqrt{4 - 3x^2} dx$

5.  $\int \sqrt{x^2 + 2x^4} dx$

6.  $\int (e^{2t} + 2)^{1/3} e^{2t} dt$

7.  $\int \frac{e^t dt}{e^t + 4}$

8.  $\int \frac{e^{1/x} + 2}{x^2} dx$

9.  $\int \operatorname{tg} x \sec^2 x dx$

10.  $\int \operatorname{sen}^4 x \cos x dx$

11.  $\int \frac{\operatorname{sen} x}{\cos^5 x} dx$

12.  $\int \frac{2 \operatorname{sen} x - 5 \cos x}{\cos x} dx$

13.  $\int e^x \cos 2 e^x dx$

14.  $\int \frac{x}{2} \cos x^2 dx$

Resolver as seguintes integrais usando a técnica de integração por partes.

1.  $\int x \operatorname{sen} 5x \, dx$

2.  $\int \ln(1 - x) \, dx$

3.  $\int t e^{4t} \, dt$

4.  $\int (x + 1) \cos 2x \, dx$

5.  $\int x \ln 3x \, dx$

6.  $\int \cos^3 x \, dx$

7.  $\int e^x \cos \frac{x}{2} \, dx$

8.  $\int \sqrt{x} \ln x \, dx$

9.  $\int \operatorname{cosec}^3 x \, dx$

10.  $\int x^2 \cos ax \, dx$

15.  $\int x^3 \sqrt{1 - x^2} \, dx$

16.  $\int \ln^3 2x \, dx$

17.  $\int \operatorname{arc} \operatorname{tg} ax \, dx$

18.  $\int x^3 \operatorname{sen} 4x \, dx$

19.  $\int (x - 1) e^{-x} \, dx$

20.  $\int x^2 \ln x \, dx$

21.  $\int x^2 e^x \, dx$

22.  $\int \operatorname{arc} \operatorname{sen} \frac{x}{2} \, dx$

23.  $\int (x - 1) \sec^2 x \, dx$

24.  $\int e^{3x} \cos 4x \, dx$

25.  $\int x^n \ln x \, dx, \quad n \in \mathbb{N}$

26.  $\int \ln(x^2 + 1) \, dx$