

Cálculo 2 - Lista 12

Integração por partes

Use integração por partes para resolver as integrais

1. $\int x e^{3x} dx$

2. $\int x \cos 2x dx$

3. $\int x \sec x \tan x dx$

4. $\int x 3^x dx$

5. $\int \ln x dx$

6. $\int \arcsin x dx$

7. $\int (\ln x)^2 dx$

8. $\int x \sec^2 x dx$

9. $\int x \arctan x dx$

10. $\int x^2 \ln x dx$

11. $\int \frac{x e^x}{(x+1)^2} dx$

12. $\int x^2 \sin 3x dx$

13. $\int \sin x \ln \cos x dx$

14. $\int \sin(\ln x) dx$

15. $\int e^x \cos x dx$

Respostas

1. $\frac{1}{3} e^{3x} (x - \frac{1}{3}) + C$

2. $\frac{1}{2} x \sin 2x + \frac{1}{4} \cos 2x + C$

3. $x \sec x - \ln |\sec x + \tan x| + C$

4. $\frac{1}{\ln 3} 3^x (x - \frac{1}{\ln 3}) + C$

5. $x \ln x - x + C$

6. $x \arcsin x + \sqrt{1 - x^2} + C$

7. $x(\ln x)^2 - 2x \ln x + 2x + C$

8. $x \tan x + \ln \cos x + C$

9. $\frac{1}{2} x^2 \arctan x - \frac{x}{2} + \frac{1}{2} \arctan x + C$

10. $\frac{x^3}{3} \ln x - \frac{x^3}{9} + C$

11. $\frac{e^x}{x+1} + C$

12. $-\frac{x^2}{3} \cos 3x - \frac{2}{9}x \sin 3x - \frac{2}{27} \cos 3x$

13. $-\cos x \ln \cos x + \cos x + C$

14. $\frac{1}{2}x(\sin \ln x - \cos \ln x) + C$

15. $\frac{1}{2}e^x(\cos x + \sin x) + C$