

TAREFA DA SEMANA 12

01. (10 pontos, sendo 0,625 por item) Calcule as seguintes integrais indefinidas, utilizando, quando necessário, mudança de variáveis.

a) $\int (x^3 + 5) dx$

b) $\int (x + \sqrt{x} + 1) dx$

c) $\int \frac{4x^4 + 1}{x} dx$

d) $\int (2 \operatorname{sen} x + \sec^2 x + e^{2x+5}) dx$

e) $\int \operatorname{sen}^2 x dx$

f) $\int 2x(x^2 + 1)^4 dx$

g) $\int \frac{x}{x^2 - 4} dx$

h) $\int \operatorname{sen}^2 x \cdot \cos x dx$

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

j) $\int \operatorname{tg} x \cdot \sec^2 x dx$

k) $\int \frac{x^2}{\sqrt{x^3 + 1}} dx$

l) $\int \frac{\ln x}{x} dx$

m) $\int \frac{\operatorname{arcsen} x}{\sqrt{1 - x^2}} dx$

n) $\int \frac{e^x}{2 + 5e^x} dx$

o) $\int \frac{1}{(5x + 2)^6} dx$

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

GABARITO DA TAREFA DA SEMANA 12

01. a) $\int (x^3 + 5) dx = \frac{x^4}{4} + 5x + C$
- b) $\int (x + \sqrt{x} + 1) dx = \frac{x^2}{2} + \frac{2x\sqrt{x}}{3} + x + C$
- c) $\int \frac{4x^4 + 1}{x} dx = x^4 + \ln|x| + C$
- d) $\int (2\sin x + \sec^2 x + e^{2x+5}) dx = -2\cos x + \operatorname{tg} x + \frac{1}{2}e^{2x+5} + C$
- e) $\int \sin^2 x dx = \frac{x}{2} - \frac{\sin 2x}{4} + C$
- f) $\int 2x(x^2 + 1)^4 dx = \frac{(x^2 + 1)^5}{5} + C$
- g) $\int \frac{x}{x^2 - 4} dx = \frac{1}{2} \ln|x^2 - 4| + C$
- h) $\int \sin^2 x \cdot \cos x dx = \frac{\sin^3 x}{3} + C$
- i) $\int \frac{\sin x}{\cos^3 x} dx = \frac{1}{2\cos^2 x} + C$
- j) $\int \operatorname{tg} x \cdot \sec^2 x dx = \frac{\operatorname{tg}^2 x}{2} + C$
- k) $\int \frac{x^2}{\sqrt{x^3 + 1}} dx = \frac{2}{3} \sqrt{x^3 + 1} + C$
- l) $\int \frac{\ln x}{x} dx = \frac{(\ln x)^2}{2} + C$
- m) $\int \frac{\arcsen x}{\sqrt{1-x^2}} dx = \frac{\arcsen^2 x}{2} + C$
- n) $\int \frac{e^x}{2 + 5e^x} dx = \frac{1}{5} \ln(2 + 5e^x) + C$
- o) $\int \frac{1}{(5x+2)^6} dx = -\frac{1}{25(5x+2)^5} + C$
- p) $\int \frac{1+4x}{1+x^2} dx = \operatorname{arctg} x + 2\ln(1+x^2) + C$