

11ª Lista de Cálculo Diferencial e Integral I - 2021-1

1. Calcule as seguintes integrais indefinidas:

a. $\int (1+x) dx$

g. $\int \frac{3}{x^3} dx$

m. $\int \frac{e^x \sin(e^x)}{\cos(e^x)} dx$

b. $\int (1-\sqrt{x})^2 dx$

h. $\int \frac{1+x^2}{\sqrt{x}} dx$

n. $\int \frac{x^2}{2+2x^3} dx$

c. $\int (2+x)^2 dx$

i. $\int \frac{4}{1+x} dx$

o. $\int \frac{2x+1}{x^2+x-1} dx$

d. $\int x\sqrt{x} dx$

j. $\int \frac{2x}{1+x^2} dx$

p. $\int \tan^2 x dx$

e. $\int \frac{1-x^5}{1-x} dx$

k. $\int \cos x \sin^3 x dx$

q. $\int -3 \cos^5 x \sin x dx$

f. $\int \left(4 \cos x - \frac{1}{\cos^2 x} \right) dx$

l. $\int \tan^5 x \sec^2 x dx$

r. $\int \frac{1+x}{1+x^2} dx$

2. Use mudança de variáveis para calcular as seguintes integrais indefinidas:

a. $\int (1-3x)^5 dx$

j. $\int \frac{dx}{9-4x^2}$

r. $\int \frac{e^{\sqrt{x}}-3}{\sqrt{x}} dx$

b. $\int \frac{x-3}{x^2-6x+4} dx$

k. $\int \sqrt[3]{(x^2+x)^2} (2x+1) dx$

s. $\int \frac{1}{4+x^2} dx$

c. $\int x\sqrt{x^2+1} dx$

l. $\int (\ln x)^{-2} \frac{dx}{x}$

t. $\int \frac{1}{x^2+2x+5} dx$

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

m. $\int \frac{1}{x(\ln(2x))^3} dx$

u. $\int \frac{5}{x^2-8x+25} dx$

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

n. $\int \cos^3(2x) \sin(2x) dx$

v. $\int \frac{1}{16-x^2} dx$

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

o. $\int \frac{\ln(x+2)}{x+2} dx$

w. $\int \frac{1}{x^2-9} dx$

g. $\int \frac{x^2}{\sqrt{x^3+2}} dx$

p. $\int (\tan(3x) \sec(3x))^2 dx$

x. $\int \frac{1}{x^2-8x+7} dx$

h. $\int \frac{1}{\sqrt{1-4x^2}} dx$

y. $\int \frac{2x-3}{x^2-6x+10} dx$

z. $\int \frac{2x+1}{4x^2+12x+13} dx$

i. $\int \frac{x^2}{1+x^6} dx$

q. $\int \frac{\ln(\ln x)}{x \ln x} dx$

3. Use integração por partes para calcular as seguintes integrais indefinidas:

a. $\int e^{\sqrt{x}} dx$

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

s. $\int \frac{\ln(x)}{\sqrt{x}} dx$

b. $\int \frac{x}{e^x} dx$

k. $\int \theta \cos(3\theta) d\theta$

t. $\int e^{at} \cos(bt) dt$

c. $\int x 2^{-x} dx$

l. $\int x^5 \cos(x^3) dx$

u. $\int (x^2 - 2x + 5)e^{-x} dx$

d. $\int x^2 3^x dx$

m. $\int (t^2 + 5t) \cos(2t) dt$

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

e. $\int \frac{x^2}{e^{3x}} dx$

n. $\int \sec^3(\theta) d\theta$

w. $\int \ln(x\sqrt{1+x^2}) dx$

f. $\int \arctan x dx$

o. $\int e^x \sin(x) dx$

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

g. $\int \arcsen x dx$

p. $\int \sin(3x) \cos(5x) dx$

y. $\int x \ln\left(\frac{1-x}{1+x}\right) dx$

h. $\int 4x \ln(2x) dx$

q. $\int x \sin(x) \cos(x) dx$

z. $\int y^3 e^{-y^2} dy$

i. $\int \sqrt{x} \ln x dx$

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