

Vježbe 3

Metoda supstitucije

4. Riješite sljedeće integrale:

a) $\int \frac{1 + \ln x}{3 + x \ln x} dx$

b) $\int x \cos(5x^2 + 3) dx$

c) $\int (x^2 + 1) \operatorname{tg} \left(\frac{x^3}{3} + x \right) dx$

d) $\int \frac{\sin 2x}{1 + \sin^2 x} dx$

e) $\int \frac{\sin 2x}{\sqrt{3 - \cos^4 x}} dx$

f) $\int \left(2 \sin \frac{x}{2} + 3 \right)^2 \cos \frac{x}{2} dx$

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

h) $\int \frac{\sin \sqrt{x} + \cos \sqrt{x}}{\sqrt{x} \sin 2\sqrt{x}} dx$

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

j) $\int \frac{x^3}{x^8 + 4} dx$

k) $\int \frac{\sin x}{\sqrt{\cos^2 x + 4 \cos x + 1}} dx$

l) $\int \frac{dx}{x^2 - 6x + 13}$

m) $\int \frac{dx}{\sqrt{2x^2 + 6x + 5}}$

n) $\int \frac{dx}{x \sqrt{1 - 4 \ln x - 4 \ln^2 x}}$

o) $\int \frac{\cos^3 x}{\sin x} dx$

p) $\int \frac{dx}{\sin^4 x}$

r) $\int \frac{dx}{\sin x \cos^2 x}$

s) $\int \frac{\sin x \cos^3 x}{1 + \cos^2 x} dx$

Parcijalna integracija

Tvrdnja

$$\int u(x)v'(x)dx = u(x)v(x) - \int u'(x)v(x)dx$$

5. Riješite sljedeće integrale:

a) $\int xe^x dx$

b) $\int x^2 e^x dx$

c) $\int \ln x dx$

d) $\int \arctg x dx$

e) $\int x \ln x dx$

f) $\int \frac{x}{\sin^2 x} dx$

g) $\int x \sin x dx$

h) $\int e^x \sin x dx$

i) $\int e^x \cos x dx$