

3. Određeni integral - 1. dio

Izračunajte integrale:

$$1. I = \int_0^1 \frac{x \, dx}{x^2 + 3x + 2}$$

$$2. I = \int_0^{\frac{\pi}{3}} \frac{\sin^3 x}{\cos^4 x} \, dx$$

$$3. I = \int_{-1}^2 \frac{dx}{(3 + 2x)^2}$$

$$4. I = \int_0^1 \sqrt{1 - x^2} \, dx$$

$$5. I = \int_1^e \frac{dx}{x\sqrt{1 + \ln x}}$$

$$6. I = \int_0^4 \frac{dx}{1 + \sqrt{x}}$$

$$7. I = \int_0^{\ln 5} \frac{e^x \sqrt{e^x - 1}}{e^x + 3} \, dx$$

$$8. I = \int_{\frac{\sqrt{2}}{2}}^1 \frac{\sqrt{1 - x^2}}{x^2} \, dx$$

$$9. I = \int_0^{\frac{\pi}{2}} x \cos x \, dx$$

$$10. I = \int_0^{e-1} \ln(x + 1) \, dx$$

$$11. I = \int_0^{\frac{\pi}{4}} \frac{x \sin x}{\cos^3 x} \, dx$$

$$12. I = \int_0^1 e^{-x} \sin(\pi x) \, dx$$

Izračunajte nepravne integrale (ili ustanovite njihovu divergenciju):

$$13. I = \int_1^{\infty} \frac{dx}{x\sqrt{x^2+1}}$$

$$14. I = \int_{-\infty}^{\infty} \frac{dx}{x^2+4x+5}$$

$$15. I = \int_{-1}^1 \frac{dx}{x^3}$$

$$16. I = \int_{-\infty}^a e^x dx$$

$$17. I = \int_{-1}^2 \frac{dx}{x^2}$$

$$18. I = \int_{-\infty}^{\infty} \frac{dx}{x^2+4x+9}$$