

10. INTEGRIRANJE RACIONALNIH FUNKCIJA

10.1. Izračunajte neodređene integrale:

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

$$(b) \int \frac{3x - 2}{2x^2 - 3x + 4} dx$$

$$(c) \int \frac{dx}{(x^2 + 2x + 10)^2}$$

$$(d) \int \frac{x^4 dx}{x^4 + 5x^2 + 4}$$

$$(e) \int \frac{x dx}{x^3 - 3x + 2}$$

$$(f) \int \frac{4x - 3}{5 - 7x} dx$$

$$(g) \int \frac{x^3 + x + 2}{x^2 + 7x + 12} dx$$

$$(h) \int \frac{dx}{2x^2 - 5x + 7}$$

10.2. Izračunajte neodređene integrale:

(a) $\int \frac{x-1}{x^2-x+1} dx$

(b) $\int \frac{2x^2-3x+3}{x^3-2x^2+x} dx$

(c) $\int \frac{x^3+4x^2-2x+1}{x^4+x} dx$

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

10.3. Izračunajte određeni integral

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

- 10.1. (a) $\operatorname{arctg}(2x + 3) + c$
- (b) $\frac{3}{4} \ln |2x^2 - 3x + 4| + \frac{1}{2\sqrt{23}} \operatorname{arctg} \frac{4x - 3}{\sqrt{23}} + c$
- (c) $\frac{1}{54} \operatorname{arctg} \frac{x + 1}{3} + \frac{1}{18} \frac{x + 1}{x^2 + 2x + 10} + c$
- (d) $x + \frac{1}{3} \operatorname{arctg} x - \frac{8}{3} \operatorname{arctg} \frac{1}{2}x + c$
- (e) $\frac{2}{9} \ln |x - 1| - \frac{2}{9} \ln |x + 2| - \frac{1}{3x - 3} + c$
- (f) $-\frac{4}{7}x + \frac{1}{49} \ln \left| x - \frac{5}{7} \right| + c$
- (g) $\frac{1}{2}x^2 - 7x - 28 \ln |x + 3| + 66 \ln |x + 4| + c$
- (h) $\frac{2}{\sqrt{31}} \operatorname{arctg} \frac{4x - 5}{\sqrt{31}} + c$

$$10.2. \text{ (a) } \frac{1}{2} \ln(x^2 - x + 1) + \frac{1}{\sqrt{3}} \operatorname{arctg} \frac{2x - 1}{\sqrt{3}} + c$$

$$\text{(b) } 3 \ln|x| - \ln|x - 1| - \frac{2}{x - 1} + c$$

$$\text{(c) } \ln|x| - 2 \ln|x + 1| + \ln|x^2 - x + 1| + \frac{2}{\sqrt{3}} \operatorname{arctg} \frac{2x - 1}{\sqrt{3}} + c$$

$$\text{(d) } \frac{1}{2} \operatorname{arctg} x + \frac{x}{2(x^2 + 1)} + c$$

$$10.3. \ln \frac{9}{8}$$