

Vaje 7. Nedoločeni integral

	$f(x)$	$\int f(x)dx$
1	$x^\alpha, \alpha \neq -1$	$\frac{x^{\alpha+1}}{\alpha+1}$
2	$\frac{1}{x}$	$\ln x $
3	e^x	e^x
4	a^x	$\frac{a^x}{\ln a}$
5	$\sin x$	$-\cos x$
6	$\cos x$	$\sin x$
7	$\frac{1}{\cos^2 x}$	$\tan x$
8	$\frac{1}{\sin^2 x}$	$-\cot x$
9	$\sinh x$	$\cosh x$
10	$\cosh x$	$\sinh x$
11	$\frac{1}{1+x^2}$	$\arctan x$
12	$\frac{1}{\sqrt{1-x^2}}$	$\arcsin x$
13	$\frac{1}{1-x^2}$	$\operatorname{artanh} x$
14	$\frac{1}{\sqrt{1+x^2}}$	$\operatorname{arsinh} x = \ln\left(x + \sqrt{x^2 + 1}\right)$

Uporaba tabele integralov

1. Z uporabo tabele integralov izračunaj naslednje integrale ter nato rezultat preveri z odvajanjem

a) $\int x^5 dx$

b) $\int x^{-\frac{2}{5}} dx$

c) $\int \frac{dx}{x^3}$

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

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

f) $\int \sqrt{x} \left(x + \frac{1}{x} \right) dx$

$$\text{g) } \int (3 \sin x - 2 \cos x) dx \quad \text{h) } \int (x + \sin x) dx \quad \text{i) } \int \left(e^x - \frac{1}{x} \right) dx$$

Uvedba nove spremenljivke

2. Izračunaj naslednje integrale

$$\begin{array}{lll} \text{a) } \int (2x + 3)^5 dx & \text{b) } \int \sqrt{1 - 4x} dx & \text{c) } \int \frac{dx}{\sqrt{5x + 3}} \\ \text{d) } \int \cos(4x) dx & \text{e) } \int \sin\left(\frac{x}{2}\right) dx & \text{f) } \int (2 \sin(5x) - 3 \cos(2x)) dx \\ \text{g) } \int \frac{dx}{1 + (2x)^2} & \text{h) } \int e^{5x+4} dx & \text{i) } \int \frac{dx}{4x + 3} \end{array}$$

3. Izračunaj naslednje integrale

$$\begin{array}{lll} \text{a) } \int x (2x^2 + 3)^5 dx & \text{b) } \int x \sqrt{4 - x^2} dx & \text{c) } \int \frac{x dx}{\sqrt{5 - 6x^2}} \\ \text{d) } \int \frac{\sin \sqrt{x}}{\sqrt{x}} dx & \text{e) } \int \frac{\sin x}{\cos^2 x} dx & \text{f) } \int \sin^3 x \cos x dx \\ \text{g) } \int \sin x \cos x dx & \text{h) } \int \cos x \tan x dx & \text{i) } \int \sin^3 x dx \end{array}$$

Integracija po delih

4. Izračunaj naslednje integrale

$$\begin{array}{lll} \text{a) } \int \ln x dx & \text{b) } \int \arctan x dx & \text{c) } \int x \cos x dx \\ \text{d) } \int x \ln x dx & \text{e) } \int x e^{2x} dx & \text{f) } \int x \sin x \cos x dx \\ \text{g) } \int x^2 e^{-x} dx & \text{h) } \int \frac{\ln x}{x^3} dx & \text{i) } \int x^3 \sin x dx \end{array}$$