Integrálálási szabályok, összefüggések

Integrálási módszerek és szabályok:

- $\int c \cdot f(x)\ \mathrm{d}x = c \cdot \int f(x)\ \mathrm{d}x$
- $\int f(x) \pm g(x)\ \mathrm{d}x = \int f(x)\ \mathrm{d}x \pm \int g(x)\ \mathrm{d}x$
- $\int f(x) \cdot g'(x)\ \mathrm{d}x = f(x) \cdot g(x) - \int f'(x) \cdot g(x)\ \mathrm{d}x$
- $\int f(ax+b)\ \mathrm{d}x = \dfrac{F(ax+b)}{a} + C$
- $\int f^{\alpha}(x) \cdot f'(x)\ \mathrm{d}x = \dfrac{f^{\alpha+1}(x)}{\alpha+1} + C, \quad (\alpha \in \mathbb{R} \setminus \{-1\})$
- $\int \dfrac{f'(x)}{f(x)}\ \mathrm{d}x = \ln|f(x)| + C$

Alapintegrálok:

$\int c\ \mathrm{d}x = cx + C$
$\int x^{\alpha}\ \mathrm{d}x = \dfrac{x^{\alpha+1}}{\alpha+1} + C, (\alpha \in \mathbb{R} \setminus \{-1\})$
$\int \dfrac{1}{x}\ \mathrm{d}x = \ln|x| + C$
$\int \sin(x)\ \mathrm{d}x = -\cos(x) + C$
$\int \cos(x)\ \mathrm{d}x = \sin(x) + C$
$\int e^{x}\ \mathrm{d}x = e^{x} + C$
$\int a^{x}\ \mathrm{d}x = \dfrac{a^{x}}{\ln(a)} + C, (a \in \mathbb{R}^{+}, a \neq 1)$
$\int \dfrac{1}{\cos^2(x)}\ \mathrm{d}x = \text{tg (x)} + C$
$\int \dfrac{1}{\sin^2(x)}\ \mathrm{d}x = \text{-ctg(x)} + C$
$\int \dfrac{1}{1+x^2}\ \mathrm{d}x = \text{arctg (x)} + C$
$\int \dfrac{-1}{1+x^2}\ \mathrm{d}x = \text{arcctg (x)} + C$
$\int \dfrac{1}{\sqrt{1-x^2}}\ \mathrm{d}x = \text{arcsin (x)} + C$
$\int \dfrac{-1}{\sqrt{1-x^2}}\ \mathrm{d}x = \text{arccos (x)} + C$
$\int \ln(x)\ \mathrm{d}x = x\ln(x) - x + C$