derivacni vzorecky

- $(\alpha^x)' = \alpha^x \ln\alpha,\ \alpha > 0$
- $(x^\alpha)' = \alpha x^{\alpha-1}$
- $(\sqrt{x})' = \frac{1}{2\sqrt{x}}$
- $(e^x)' = e^x$
- $(\ln x)' = \frac{1}{x}$
- $(\log_\alpha x)' = \frac{1}{x\ln\alpha}$
- $(\sin x)' = \cos x$
- $(\cos x)' = -\sin x$
- $(\tan x)' = \frac{1}{\cos^2 x}$
- $(\mathrm{cotan}\, x)' = -\frac{1}{\sin^2 x}$
- $(\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$
- $(\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$
- $(\arctan x)' = \frac{1}{1+x^2}$
- $(\mathrm{arccotan}\, x)' = -\frac{1}{1+x^2}$
- $(\alpha f \pm \beta g)' = \alpha f' \pm \beta g'$
- $(fg)' = f'g + fg'$
- $(\frac{f}{g})' = \frac{f'g-fg'}{g^2}$

integracni vzorecky

- $\int \frac{1}{x} dx = \ln|x| + C$
- $\int \frac{1}{x^2} dx = \frac{-1}{x} + C$
- $\int \frac{1}{x^2+1} dx = \arctan x + C$

aplikace urcitych integralu

- delka krivky: $d = \int_a^b \sqrt{1+(f'(x))^2}\ dx$
- plocha pod krivkou: $P = \int_a^b f(x)\ dx$
- povrch rotacniho telesa: $S = 2\pi \int_a^b f(x)\sqrt{1+(f'(x))^2}\ dx$
- objem rotacniho telesa: $V = \pi \int_a^b f^2(x)\ dx$