

Matematika (UMI010)

Jan.Eisner@prf.jcu.cz

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cvičení 11. Integrály

Tabulkové integrály $\left(\int f(x) \, dx = F(x), F'(x) = f(x)\right)$:

$$f(x) = 0$$

$$F(x) = c$$

$$f(x) = a$$

$$F(x) = ax + c$$

$$f(x) = ax^n, n \neq -1$$

$$F(x) = a \frac{x^{n+1}}{n+1} + c$$

$$f(x) = \frac{1}{x}$$

$$F(x) = \ln |x| + c$$

$$f(x) = e^x$$

$$F(x) = e^x + c$$

$$f(x) = \sin x$$

$$F(x) = -\cos x + c$$

$$f(x) = \cos x$$

$$F(x) = \sin x + c$$

$$f(x) = \frac{1}{1+x^2}$$

$$F(x) = \arctan x + c$$

$$f(x) = \frac{1}{\sqrt{1-x^2}}$$

$$F(x) = \arcsin x + c$$

Per partes: $\int uv' \, dx = uv - \int u'v \, dx$ [Někdy je vhodné zvolit $u = 1$]

Substituce: $\int g(f(x)) \cdot f'(x) \, dx = G(f(x)), G'(y) = g(y);$

pro $g(y) = 1/y$: $\int \frac{f'(x)}{f(x)} \, dx = \ln |f(x)| + c$