Integrál a aritmetické operace

$$\int \big(f(x) \pm g(x)\big)\,\mathrm{d}x = \int f(x)\,\mathrm{d}x \pm \int g(x)\,\mathrm{d}x$$

$$\int cf(x)\,\mathrm{d}x = c\int f(x)\,\mathrm{d}x$$

Integrály elementárních funkcí

$$\int k\,\mathrm{d}x = kx + C$$

$$\int x^n\,\mathrm{d}x = \tfrac{x^{n+1}}{n+1} + C$$

$$\int \tfrac{1}{x}\,\mathrm{d}x = \ln|x| + C$$

$$\int \mathrm{e}^x\,\mathrm{d}x = \mathrm{e}^x + C$$

$$\int a^x\,\mathrm{d}x = \tfrac{a^x}{\ln a} + C$$

$$\int \sin x\,\mathrm{d}x = -\cos x + C$$

$$\int \cos x\,\mathrm{d}x = \sin x + C$$

$$\int \tfrac{1}{\cos^2 x}\,\mathrm{d}x = \operatorname{tg} x + C$$

$$\int \tfrac{1}{\sin^2 x}\,\mathrm{d}x = -\operatorname{cotg} x + C$$

$$\int \tfrac{1}{\sqrt{1-x^2}}\,\mathrm{d}x = \arcsin x + C$$

$$\int \tfrac{1}{1+x^2}\,\mathrm{d}x = \operatorname{arctg} x + C$$

Obsah plochy

$$S = \int_a^b f(x)\,\mathrm{d}x$$

$$S = \int_\alpha^\beta \psi(t) \cdot \varphi'(t)\,\mathrm{d}t$$

$$S = \int_\alpha^\beta \tfrac{1}{2} r^2(\varphi)\,\mathrm{d}\varphi$$

Délka křivky

$$l = \int_a^b \sqrt{1 + [f'(x)]^2}\,\mathrm{d}x$$

$$l = \int_\alpha^\beta \sqrt{[\varphi'(t)]^2 + [\psi'(t)]^2}\,\mathrm{d}t$$

$$l = \int_\alpha^\beta \sqrt{[r(\varphi)]^2 + [r'(\varphi)]^2}\,\mathrm{d}\varphi$$

Objem rotačního tělesa

$$V = \pi \int_a^b f^2(x)\,\mathrm{d}x$$

$$V = \pi \int_\alpha^\beta [\psi(t)]^2 \cdot |\varphi'(t)|\,\mathrm{d}t$$

$$V = \pi \int_\alpha^\beta r^2(\varphi) \sin^2\varphi \cdot |r'(\varphi)\cos\varphi - r(\varphi)\sin\varphi|\,\mathrm{d}\varphi$$