# Cálculo

Formulário 3 2017'18

## Regras de primitivação

Na lista de primitivas que se segue, $u : I \longrightarrow \mathbb{R}$ é uma função derivável no intervalo $I$ e $\mathcal{C}$ denota uma constante real arbitrária.

$$\int a\,dx = ax + \mathcal{C} \quad (a \in \mathbb{R})$$

$$\int u'(x)\,u^{\alpha}(x)\,dx = \frac{u^{\alpha+1}(x)}{\alpha+1} + \mathcal{C} \quad (\alpha \neq -1)$$

$$\int \frac{u'(x)}{u(x)}\,dx = \ln|u(x)| + \mathcal{C}$$

$$\int a^{u(x)}\,u'(x)\,dx = \frac{a^{u(x)}}{\ln a} + \mathcal{C} \quad (a \in \mathbb{R}^+\backslash\{1\})$$

$$\int u'(x)\,\cos(u(x))\,dx = \operatorname{sen}(u(x)) + \mathcal{C}$$

$$\int u'(x)\,\operatorname{sen}(u(x))\,dx = -\cos(u(x)) + \mathcal{C}$$

$$\int u'(x)\sec^2(u(x))\,dx = \operatorname{tg}(u(x)) + \mathcal{C}$$

$$\int u'(x)\operatorname{cosec}^2(u(x))\,dx = -\operatorname{cotg}(u(x)) + \mathcal{C}$$

$$\int u'(x)\operatorname{tg}(u(x))\,dx = -\ln|\cos(u(x))| + \mathcal{C}$$

$$\int u'(x)\operatorname{cotg}(u(x))\,dx = \ln|\operatorname{sen}(f(x))| + \mathcal{C}$$

$$\int u'(x)\,\operatorname{ch}(u(x))\,dx = \operatorname{sh}(u(x)) + \mathcal{C}$$

$$\int u'(x)\,\operatorname{sh}(u(x))\,dx = \operatorname{ch}(u(x)) + \mathcal{C}$$

$$\int u'(x)\operatorname{sech}^2(u(x))\,dx = \operatorname{th}(u(x)) + \mathcal{C}$$

$$\int u'(x)\operatorname{cosech}^2(u(x))\,dx = -\coth(u(x)) + \mathcal{C}$$

$$\int u'(x)\operatorname{th}(u(x))\,dx = \ln(\cosh(u(x))) + \mathcal{C}$$

$$\int u'(x)\coth(u(x))\,dx = \ln|\operatorname{sh}(u(x))| + \mathcal{C}$$

$$\int \frac{u'(x)}{\sqrt{1-u^2(x)}}\,dx = \operatorname{arcsen}(u(x)) + \mathcal{C}$$

$$\int \frac{u'(x)}{1+u^2(x)}\,dx = \operatorname{arctg}(u(x)) + \mathcal{C}$$

$$\int \frac{u'(x)}{\sqrt{u^2(x)+1}}\,dx = \operatorname{argsh}(u(x)) + \mathcal{C}$$

$$\int \frac{u'(x)}{\sqrt{u^2(x)-1}}\,dx = \operatorname{argch}(u(x)) + \mathcal{C}$$