Universidade do Minho
Departamento de Matemática

LEInf

Cálculo para a Engenharia

Formulário 3 — 2021'22

$u: I \longrightarrow \mathbb{R}$ é uma função derivável num intervalo I, a é uma constante real apropriada e $\mathcal{C}$ denota uma constante real arbitrária.

$$\int a\,dx = ax + \mathcal{C}$$

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

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

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

$$\int \frac{u'}{\cos^2 u}\,dx = \operatorname{tg} u + \mathcal{C}$$

$$\int \frac{u'}{\cos u}\,dx = \ln\left|\frac{1}{\cos u} + \operatorname{tg} u\right| + \mathcal{C}$$

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

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

$$\int u' \cosh u\,dx = \operatorname{senh} u + \mathcal{C}$$

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

$$\int \frac{u'}{\cosh^2 u}\,dx = \tanh u + \mathcal{C}$$

$$\int \frac{u'}{\sqrt{u^2+1}}\,dx = \operatorname{argsenh} u + \mathcal{C}$$

$$\int \frac{u'}{1-u^2}\,dx = \operatorname{argtanh} u + \mathcal{C}$$

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

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

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

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

$$\int \frac{u'}{\operatorname{sen}^2 u}\,dx = -\operatorname{cotg} u + \mathcal{C}$$

$$\int \frac{u'}{\operatorname{sen} u}\,dx = \ln\left|\frac{1}{\operatorname{sen} u} - \operatorname{cotg} u\right| + \mathcal{C}$$

$$\int \frac{-u'}{\sqrt{1-u^2}}\,dx = \arccos u + \mathcal{C}$$

$$\int \frac{-u'}{1+u^2}\,dx = \operatorname{arccotg} u + \mathcal{C}$$

$$\int u' \operatorname{senh} u\,dx = \cosh u + \mathcal{C}$$

$$\int u' \operatorname{cotanh} u\,dx = \ln(\operatorname{senh} u) + \mathcal{C}$$

$$\int \frac{u'}{\operatorname{senh}^2 u}\,dx = -\operatorname{cotanh} u + \mathcal{C}$$

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

$$\int \frac{u'}{1-u^2}\,dx = \operatorname{argcotanh} u + \mathcal{C}$$