Universidade do Minho

Introdução aos Sistemas Dinâmicos

MIEInformática

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Dep. de Matemática e Aplicações

Primitivas Imediatas

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

1.
$$\int a \, dx = ax + \mathcal{C}$$

3.
$$\int \frac{f'(x)}{f(x)} dx = \ln|f(x)| + C$$

5.
$$\int f'(x)\cos f(x) dx = \operatorname{sen}(f(x)) + \mathcal{C}$$

7.
$$\int \frac{f'(x)}{\cos^2(f(x))} dx = \operatorname{tg}(f(x)) + C$$

9.
$$\int f'(x) \operatorname{tg} f(x) dx = -\ln|\cos(f(x))| + C$$

11.
$$\int \frac{f'(x)}{\cos(f(x))} dx = \ln \left| \frac{1}{\cos(f(x))} + \operatorname{tg} f \right| + C$$

13.
$$\int \frac{f'(x)}{\sqrt{1 - f^2(x)}} dx = \arcsin(f(x)) + C$$

15.
$$\int \frac{f'(x)}{1 + f^2(x)} dx = \operatorname{arctg}(f(x)) + C$$

17.
$$\int f'(x) \operatorname{ch}(f(x)) dx = \operatorname{sh}(f(x)) + \mathcal{C}$$

19.
$$\int \frac{f'(x)}{\operatorname{ch}^2(f(x))} dx = \operatorname{th}(f(x)) + \mathcal{C}$$

21.
$$\int \frac{f'(x)}{\sqrt{f^2(x)+1}} dx = \operatorname{argsh}(f(x)) + C$$

23.
$$\int \frac{f'(x)}{1 - f^2(x)} dx = \operatorname{argth}(f(x)) + C$$

2.
$$\int f'(x)f^{\alpha}(x) dx = \frac{f^{\alpha+1}(x)}{\alpha+1} + \mathcal{C} \ (\alpha \neq -1)$$

4.
$$\int a^{f(x)} f'(x) dx = \frac{a^{f(x)}}{\ln a} + \mathcal{C} \ (a \in \mathbb{R}^+ \setminus \{1\})$$

6.
$$\int f'(x) \operatorname{sen} f(x) dx = -\cos f(x) + C$$

8.
$$\int \frac{f'(x)}{\operatorname{sen}^2(f(x))} dx = -\cot(f(x)) + C$$

9.
$$\int f'(x) \operatorname{tg} f(x) dx = -\ln|\cos(f(x))| + C$$
 10.
$$\int f'(x) \operatorname{cotg} f(x) dx = \ln|\sin(f(x))| + C$$

11.
$$\int \frac{f'(x)}{\cos(f(x))} dx = \ln \left| \frac{1}{\cos(f(x))} + \operatorname{tg} f \right| + \mathcal{C} \quad 12. \int \frac{f'(x)}{\sin(f(x))} dx = \ln \left| \frac{1}{\sin(f(x))} - \cot(f(x)) \right| + \mathcal{C}$$

14.
$$\int \frac{-f'(x)}{\sqrt{1-f^2(x)}} dx = \arccos(f(x)) + C$$

16.
$$\int \frac{-f'(x)}{1+f^2(x)} dx = \operatorname{arccotg}(f(x)) + C$$

18.
$$\int f'(x)\operatorname{sh}(f(x))\,dx = \operatorname{ch}(f(x)) + \mathcal{C}$$

20.
$$\int \frac{f'(x)}{\sinh^2(f(x))} dx = -\coth(f(x)) + C$$

22.
$$\int \frac{f'(x)}{\sqrt{f^2(x)-1}} dx = \operatorname{argch}(f(x)) + C$$

24.
$$\int \frac{f'(x)}{1 - f^2(x)} dx = \operatorname{argcoth}(f(x)) + C$$