Formulaire de primitives

$\int \frac{dt}{t} = \ln|t| + k, \ (t) \in \mathbb{R}^*,$

Si $f \ : \ I \longrightarrow \mathbb{R}^*$ est dérivable, $\int \frac{f'(t)}{f(t)} \ dt = \ln|f(t)| + k.$

$\int \ln(t) \ dt = t\ln t - t + k.$

pour tout **complexe** $a \neq -1$, $\int t^a dt = \frac{t^{a+1}}{a+1} + k.$

Pour tout **complexe** $m \neq 0$, $\int e^{mt} \ dt = \frac{1}{m} e^{mt} + k.$

$\int \cos(t) \ dt = \sin(t) + k,$

$\int \sin(t) \ dt = -\cos(t) + k.$

$\int \mathrm{ch}(t) \ dt = \mathrm{sh}(t) + k,$

$\int \mathrm{sh}(t) \ dt = \mathrm{ch}(t) + k.$

$\int \tan(t) \ dt = -\ln|\cos(t)| + k, t \in \mathbb{R} \setminus (\frac{\pi}{2} + \pi\mathbb{Z}).$

$\int \mathrm{cotan} \ (t) \ dt = \ln|\sin(t)| + k, t \in \mathbb{R} \setminus \pi\mathbb{Z}.$

$\int \mathrm{th}(t) \ dt = \ln(\mathrm{ch}(t)) + k$

$\int \coth(t) \ dt = \ln|\mathrm{sh}(t)| + k, t \in \mathbb{R}^*.$

$\int \frac{dt}{\cos^2 t} = \tan(t) + k, t \in \mathbb{R} \setminus (\frac{\pi}{2} + \pi\mathbb{Z})$

$\int \frac{dt}{\sin^2 t} = -\mathrm{cotan} \ (t) + k, t \in \mathbb{R} \setminus \pi\mathbb{Z}.$

$\int \frac{dt}{\mathrm{ch}^2 t} = \mathrm{th}(t) + k$

$\int \frac{dt}{\mathrm{sh}^2 t} = -\coth(t) + k, t \in \mathbb{R}^*.$

$$\int (1+\tan^2 t)dt = \tan(t)+k, t \in \mathbb{R} \setminus (\frac{\pi}{2}+\pi\mathbb{Z}),$$

$$\int (1-\text{th}^2 t)dt = \text{th}(t)+k.$$

$$\int \frac{dt}{\cos(t)} = \ln\left|\tan\left(\frac{t}{2}+\frac{\pi}{4}\right)\right| + k, t \in \mathbb{R} \setminus (\frac{\pi}{2}+\pi\mathbb{Z}).$$

$$\int \frac{dt}{\sin(t)} = \ln\left|\tan\left(\frac{t}{2}\right)\right| + k, t \in \mathbb{R} \setminus \pi\mathbb{Z}.$$

$$\int \frac{dt}{\text{ch}(t)} = 2\arctan(e^t)+k$$

$$\int \frac{dt}{\text{sh}(t)} = \ln\left|\text{th}\left(\frac{t}{2}\right)\right| + k, t \in \mathbb{R}^*.$$

Soit $a \in \mathbb{R}_+^*$:

$$\int \frac{dt}{t^2+a^2} = \frac{1}{a}\arctan\left(\frac{t}{a}\right)+k$$

$$\int \frac{dt}{t^2-a^2} = \begin{cases} \frac{1}{2a}\ln\left|\frac{t-a}{t+a}\right| + k, t \in \mathbb{R} \setminus \{a,-a\} \\ -\frac{1}{a}\text{argth}\left(\frac{t}{a}\right) + k, t \in]-a,a[\end{cases}.$$

$$\int \frac{dt}{\sqrt{a^2-t^2}} = \arcsin\left(\frac{t}{a}\right)+k = -\arccos\left(\frac{t}{a}\right)+k', t \in]-a,a[.$$

Soit $b \in \mathbb{R}^*$: $\displaystyle\int \frac{dt}{\sqrt{t^2+b}} = \ln(|t+\sqrt{t^2+b}|)+k.$