

Formulaire de primitives

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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