## 常用积分运算

把书上常用的积分运算整合了一下,标红的公式经常会用到。

$\int k dx = kx + C$	$\int x^{lpha} dx = rac{x^{lpha+1}}{lpha+1} + C, lpha  eq -1$
$\int rac{1}{x^2\!-\!a^2} dx = rac{1}{2a} \mathrm{ln}   rac{x-a}{x+a}  + C$	$\int x^{-1} dx = \int rac{1}{x} dx = \ln x  + C$
$\int e^x dx = e^x + C$	$\int rac{1}{\sqrt{x^2\!+\!a^2}} dx = \ln x+\sqrt{x^2+a^2}  + C$
$\int a^x dx = rac{a^x}{\ln a} + C$	$\int rac{1}{\sqrt{x^2-a^2}} dx = \ln x+\sqrt{x^2-a^2}  + C$
$\int rac{1}{1+x^2} dx = rctan  x + C$	$\int rac{1}{\sqrt{1-x^2}} dx = rcsin x + C$
$\int rac{1}{a^2+x^2} dx = rac{1}{a} \mathrm{arctan} \ rac{x}{a} + C$	$\int \frac{1}{\sqrt{a^2-x^2}} dx = \arcsin \frac{x}{a} + C$
$\int \cos x dx = \sin x + C$	$\int \cot x dx = \ln  \sin x  + C$
$\int \sin x dx = -\cos x + C$	$\int  an x dx = -\ln  \cos x  + C$
$\int rac{1}{\cos^2 x} dx =  an x + C$	$\int \sec^2 x dx =  an x + C$
$\int rac{1}{\sin^2 x} dx = -\cot x + C$	$\int \csc^2 x dx = -\cot x + C$
$\int \sec x \tan x dx = \sec x + C$	$\int \sec x dx = \ln \sec x + \tan x  + C$
$\int \csc x \cot x dx = -\csc x + C$	$\int \csc x dx = \ln \csc x - \cot x  + C$