No.
Date.

قوانين التكامل الغير محدد

① $\int dy = y + c$

② $\int a\,dy = a\int dy = a(y) + c$

③ $\int y(x) \mp v(x)\,dx \int y(x)\,dx \mp \int v(x)\,dx$

④ $\int y^a\,dy = \frac{y^{a+1}}{a+1} + c$ when $\int y^{-1}\,dy = \int \frac{1}{y}\,dy = \ln y + c$

⑤ $\int a^y\,dy = \frac{a^y}{\ln a} + c \Rightarrow \int e^y\,dy = e^y + c$

⑥ $\int \sin y\,dy = -\cos y + c$ ($\int \sin(ay)\,dx = -\frac{1}{a}\cos ax$)

⑦ $\int \cos y\,dy = \sin y + c$

⑧ $\int \sec^2 y\,dy = \tan y + c$

⑨ $\int \csc^2 y\,dy = -\cot y + c$

⑩ $\int \csc y \cdot \cot y\,dy = -\csc y + c$

⑪ $\int \sec y \cdot \tan y\,dy = \sec y + c$

⑫ $\int \tan y\,dy = -\ln|\cos y| + c$

⑬ $\int \cot y\,dy = \ln|\sin y| + c$

⑭ $\int \sec y\,dy = \ln|\sec y + \tan y| + c$

⑮ $\int \csc y\,dy = -\ln|\csc y + \cot| + c$

السالبة

⑯ $\frac{dy}{\sqrt{a^2 - y^2}} = \begin{cases} \sin^{-1}\frac{y}{a} + c & -y \\ -\cos^{-1}\frac{y}{a} + c \end{cases}$

⑰ $\frac{dy}{a^2 + y^2} = \begin{cases} \frac{1}{a}\tan^{-1} y + c \\ -\frac{1}{a}\cot^{-1} y + c \end{cases}$ $-a$

⑱ $\frac{dy}{|y|\sqrt{y^2 - a^2}} = \begin{cases} \frac{1}{a}\sec^{-1}|y| + c \\ -\frac{1}{a}\csc^{-1}|y| + c \end{cases}$

(19) $\int \sinh u\,du = \cosh u + c$

(20) $\int \cosh u\,du = \sinh u + c$

(21) $\int \operatorname{sech}^2 u\,du = \tanh u + c$

(22) $\int \operatorname{csch}^2 u\,du = -\coth u + c$

(23) $\int \operatorname{sech} u \tanh u\,du = -\operatorname{sech} u + c$

(24) $\int \coth u \operatorname{csch} u\,du = -\operatorname{csch} u + c$

(25) $\int \tanh u = \ln|\cosh u| + c$

(26) $\int \coth u = \ln|\sinh u| + c$

(27) $\int \frac{du}{\sqrt{u^2+1}} = \sinh^{-1} u + c$ (+1 -1)

(28) $\int \frac{du}{\sqrt{u^2-1}} = \cosh^{-1} u + c$

(29) $\int \frac{du}{u\sqrt{1-u^2}} = -\operatorname{sech}^{-1} u + c$ (-u +u)

(30) $\int \frac{du}{u\sqrt{1+u^2}} = -\operatorname{csch}^{-1} u + c$

(31) $\int \frac{du}{1-u^2} =$

$\tanh^{-1} u + c$

$\coth^{-1} u + c$

(Differentiation)

فيما يلي جدول بالمشتقات يوضح كل دالة ومشتقتها

Function $y = f(x)$	Derivative $\bar{y} = \frac{dy}{dx}$
c = Constant — ثابت	0
x	1
cx	$c.1 = c$
x^n	$n x^{n-1}$
u^n	$n u^{n-1} . \bar{u}$
$u . v$	$u . \bar{v} + v \bar{u}$
$\frac{u}{v}$	$\frac{v . \bar{u} - u . \bar{v}}{v^2}$
$\sin x$	$\cos x$
$\sin u$	$\cos u . \bar{u}$
$\cos x$	$-\sin x$
$\cos u$	$-\sin u . \bar{u}$
$\tan x$	$\frac{1}{\cos^2 x} = \sec^2 x$
$\tan u$	$\frac{1}{\cos^2 u} . \bar{u} = \sec^2 u . \bar{u}$
e^x	e^x
e^u	$e^u . \bar{u}$
$\ln x$	$\frac{1}{x}$
$\ln u$	$\frac{1}{u} . \bar{u}$
$\log_a x$	$\frac{1}{x} . \log_a e$
$\log_a u$	$\frac{1}{u} . \log_a e . \bar{u}$
a^x	$a^x . \ln a$
a^u	$a^u . \ln a . \bar{u}$

مشتقات الدوال المثلثية الأخرى

$\sec x$	$\sec x \cdot \tan x$
$\sec u$	$\sec u \cdot \tan u \cdot \bar{u}$
$\csc x$	$-\csc x \cdot \cot x$
$\csc u$	$-\csc u \cdot \cot u \cdot \bar{u}$
$\cot x$	$-\csc^2 x$
$\cot u$	$-\csc^2 u \cdot \bar{u}$

مشتقات الدوال المثلثية العكوسة

$\sin^{-1} x$	$\frac{1}{\sqrt{1-x^2}}$
$\sin^{-1} u$	$\frac{1}{\sqrt{1-u^2}} \cdot \bar{u}$
$\cos^{-1} x$	$\frac{-1}{\sqrt{1-x^2}}$
$\cos^{-1} u$	$\frac{-1}{\sqrt{1-u^2}} \cdot \bar{u}$
$\tan^{-1} x$	$\frac{1}{1+x^2}$
$\tan^{-1} u$	$\frac{1}{1+u^2} \cdot \bar{u}$
$\cot^{-1} x$	$\frac{-1}{1+x^2}$
$\cot^{-1} u$	$\frac{-1}{1+u^2} \cdot \bar{u}$
$\sec^{-1} x$	$\frac{1}{x\sqrt{x^2-1}}$
$\sec^{-1} u$	$\frac{1}{u\sqrt{u^2-1}} \cdot \bar{u}$
$\csc^{-1} x$	$\frac{-1}{x\sqrt{x^2-1}}$
$\csc^{-1} u$	$\frac{-1}{u\sqrt{u^2-1}} \cdot \bar{u}$

hyperbolic fun. مشتقات

$\sinh x$	$\cosh x$
$\sinh u$	$\cosh u \cdot \bar{u}$
$\cosh x$	$\sinh x$
$\cosh u$	$\sinh u \cdot \bar{u}$
$\tanh x$	$\operatorname{sech}^2 x$
$\tanh u$	$\operatorname{sech}^2 u \cdot \bar{u}$
$\coth x$	$-\operatorname{csch}^2 x$
$\coth u$	$-\operatorname{csch}^2 u \cdot \bar{u}$
$\operatorname{sech} x$	$-\operatorname{sech} x \tanh x$
$\operatorname{sech} u$	$-\operatorname{sech} u \tanh u \cdot \bar{u}$
$\operatorname{csch} x$	$-\operatorname{csch} x \coth x$
$\operatorname{csch} u$	$-\operatorname{csch} u \coth u \cdot \bar{u}$

hyper. fun. عكس مشتقات

$\sinh^{-1} x$	$\frac{1}{\sqrt{1+x^2}}$
$\sinh^{-1} u$	$\frac{1}{\sqrt{1+u^2}} \cdot \bar{u}$
$\cosh^{-1} x$	$\frac{1}{\sqrt{x^2-1}}$ $(x>1)$
$\cosh^{-1} u$	$\frac{1}{\sqrt{u^2-1}} \cdot \bar{u}$ $(u>1)$
$\tanh^{-1} x$	$\frac{1}{1-x^2}$ $(\lvert x\rvert<1$ عندما$)$
$\tanh^{-1} u$	$\frac{1}{1-u^2} \cdot \bar{u}$ $(\lvert u\rvert<1)$
$\coth^{-1} x$	$\frac{1}{1-x^2}$ $(\lvert x\rvert>1$ عندما$)$
$\coth^{-1} u$	$\frac{1}{1-u^2} \cdot \bar{u}$ $(\lvert u\rvert>1)$
$\operatorname{sech}^{-1} x$	$\frac{-1}{x\sqrt{1-x^2}}$
$\operatorname{sech}^{-1} u$	$\frac{-1}{u\sqrt{1-u^2}} \cdot \bar{u}$
$\operatorname{csch}^{-1} x$	$\frac{-1}{\lvert x\rvert\sqrt{1+x^2}}$
$\operatorname{csch}^{-1} u$	$\frac{-1}{\lvert u\rvert\sqrt{1+u^2}} \cdot \bar{u}$