

some antiderivatives

function $f(x)$	antiderivative $\int f(x) dx$
$f(x) = a$	$\int f(x) dx = ax + C$
$f(x) = ax^n$	$\int f(x) dx = \frac{ax^{(n+1)}}{n+1} + C$
$f(x) = ax^{-1}$	$\int f(x) dx = a \ln x + C$
$f(x) = ae^{kx}$	$\int f(x) dx = \frac{1}{k}ae^{kx} + C$
$f(x) = a \cos(kx)$	$\int f(x) dx = \frac{1}{k}a \sin(kx) + C$
$f(x) = a \sin(kx)$	$\int f(x) dx = -\frac{1}{k}a \cos(kx) + C$

rules of differentiation integration

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graph TD; A["rules of differentiation<br/>integration"] --- B("sum rule"); A --- C["product rule<br/>integration by parts"]; A --- D["chain rule<br/>substitution"]
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sum rule

product rule
integration by parts

chain rule
substitution