MATHEMTAICAL TABLES

$\int \coth ax\, dx = \dfrac{1}{a} \ln \sinh ax + c$
$\int \tanh^2 ax\, dx = x - \dfrac{(\tanh ax)}{(a)} + c$
$\int \coth^2 ax\, dx = x - \dfrac{(\coth ax)}{(a)} + c$
$\int \sinh ax \sinh Bx\, dx = \dfrac{1}{(a^2 - B^2)}(a \sinh Bx \cosh ax - B \cosh Bx \sinh ax) + k$
$\int \cosh ax \cosh Bx\, dx = \dfrac{1}{(a^2 - B^2)}(a\, shin\, ax \cosh Bx - B \sinh Bx \cosh ax) + k$
$\int \cosh ax \sinh Bx\, dx = \dfrac{1}{(a^2 - B^2)}(a \sinh Bx \sinh ax - B\cosh Bx \cosh ax) + k$

Integrals Containing Exponential Functions

$\int A^{(ax+B)}\, dx = \dfrac{1}{(a \ln A)} A^{(ax+B)} + k\ \ for\ A > 0,\ A \neq 1$
$\int F(e^{ax})\, dx = \dfrac{1}{a} \int F(t) \dfrac{dt}{t},\ where\ t = e^{ax}$
$\int x\, e^{ax}\, dx = \dfrac{(ax-1)}{a^2} e^{ax} + k$
$\int x^2 e^{ax}\, dx = \dfrac{(a^2 x^2 - 2ax + 2)}{a^3} e^{ax} + k$
$\int x^3 e^{ax}\, dx = \dfrac{(a^3 x^3 - 3a^2 x^2 + 6ax - 6)}{a^4} e^{ax} + k$
$\int x^4 e^{ax}\, dx = \dfrac{(a^4 x^4 - 4a^3 x^3 + 12 a^2 x^2 - 24 ax + 24)}{a^5} e^{ax} + k$
$\int x^n e^{ax}\, dx = e^{ax}\left(\dfrac{x^n}{a} - \dfrac{(n x^{(n-1)})}{a^2} + \dfrac{(n(n-1)x^{(n-2)})}{a^3} - .. + (-1)^{(n-1)} \dfrac{(n!\, x)}{a^n} + (-1)^n \dfrac{(n!)}{a^{(n+1)}}\right) + k$