

MATHEMATICAL TABLES

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| $\int \frac{xdx}{(\sin^n ax)} = \frac{-(x \cos ax)}{[(n-1)a \sin^{(n-1)} ax]} - \left[\frac{1}{((n-1)(n-2)a^2 \sin^{(n-2)} ax)} \right] + \left[\frac{(n-2)}{(n-1)} \int \frac{xdx}{(\sin^{(n-2)} ax)} \right], (n > 2)$ |
| $\int \frac{dx}{(1 + \sin ax)} = \frac{-1}{a} \tan \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \frac{dx}{(1 - \sin ax)} = \frac{1}{a} \tan \left[\frac{\pi}{4} + \frac{ax}{2} \right] + c$ |
| $\int \frac{xdx}{(1 + \sin ax)} = \frac{-x}{a} \tan \left[\frac{\pi}{4} - \frac{ax}{2} \right] + \frac{2}{a^2} \ln \cos \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \frac{xdx}{(1 - \sin ax)} = \frac{x}{a} \cot \left[\frac{\pi}{4} - \frac{ax}{2} \right] + \frac{2}{a^2} \ln \left(\sin \left[\frac{\pi}{4} - \frac{ax}{2} \right] \right) + c$ |
| $\int \frac{(\sin ax)}{(1 \pm \sin ax)} dx = \pm x + \frac{1}{a} \tan \left[\frac{\pi}{4} \mp \frac{ax}{2} \right] + c$ |
| $\int \frac{dx}{[\sin ax (1 \pm \sin ax)]} = \frac{1}{a} \tan \left[\frac{\pi}{4} \mp \frac{ax}{2} \right] + \frac{1}{a} \ln \left(\tan \frac{ax}{2} \right) + c$ |
| $\int \frac{dx}{(1 + \sin ax)^2} = \frac{-1}{2a} \tan \left[\frac{\pi}{4} - \frac{ax}{2} \right] - \frac{1}{6a} \tan^3 \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \frac{dx}{(1 - \sin ax)^2} = \frac{1}{2a} \cot \left[\frac{\pi}{4} - \frac{ax}{2} \right] + \frac{1}{6a} \cot^3 \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \sin ax \frac{dx}{(1 + \sin ax)^2} = \frac{-1}{2a} \tan \left[\frac{\pi}{4} - \frac{ax}{2} \right] + \frac{1}{6a} \tan^3 \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \frac{(\sin ax)}{(1 - \sin ax)^2} dx = \frac{-1}{2a} \cot \left[\frac{\pi}{4} - \frac{ax}{2} \right] + \frac{1}{6a} \cot^3 \left[\frac{\pi}{4} - \frac{ax}{2} \right] + c$ |
| $\int \frac{dx}{(1 + \sin^2 ax)} = \frac{1}{(2\sqrt{2a})} \sin^{-1} \left[\frac{(3\sin^2 ax - 1)}{(\sin^2 ax + 1)} \right] + c$ |
| $\int \frac{dx}{(1 - \sin^2 ax)} = \frac{1}{a} \tan ax + c$ |
| $\int \sin ax \sin bx dx = \frac{[\sin(a-b)x]}{[2(a-b)]} - \frac{[\sin(a+b)x]}{[2(a+b)]} + c, \text{ for } a \neq b $ |
| $\int \frac{dx}{(b + c \sin ax)} = \frac{2}{(a\sqrt{(b^2 - c^2)})} \tan^{-1} \left[\frac{(b \tan(\frac{ax}{2}) + c)}{(\sqrt{(b^2 - c^2)})} \right] + k$ |
| $\text{for } : b^2 > c^2$ |
| $\frac{1}{(a\sqrt{(c^2 - b^2)})} \ln \left[\frac{(b \tan(\frac{ax}{2}) + c - \sqrt{(c^2 - b^2)})}{(b \tan(\frac{ax}{2}) + c + \sqrt{(c^2 - b^2)})} \right] + k$ |