General Power Rule	$\int kdx = kx + C$ $\int kf(x)dx = k\int f(x)dx$ $\int [f(x)+g(x)]dx = \int f(x)dx + \int g(x)dx$ $\int [f(x)-g(x)]dx = \int f(x)dx - \int g(x)dx$ $\int x^n dx = \frac{x^{n+1}}{n+1} + C \quad , n \neq -1$ $\int u^n \frac{du}{dx} dx = \int u^n du = \frac{u^{n+1}}{n+1} + C \quad , n \neq -1$
Simple Exponential Rule	$\int e^x dx = e^x + C$
General Exponential Rule	$\int e^x \frac{du}{dx} dx = \int e^x du = e^u + C$
Simple Logarithmic Rule	$\int \frac{1}{x} dx = \ln \lvert x \rvert + C$
General Logarithmic Rule	$\int \frac{du/dx}{u} dx = \int \frac{1}{u} du = \ln \lvert u \rvert + C$
Area	$\int_a^b f(x)dx = F(x) \Big\rvert_a^b = F(b) - F(a)$ $F'(x) = f(x)$
Integration by Parts	$\int udv = uv - \int vdu$

$\int f(x) = xf(0) + \frac{x^2}{1\cdot 2} f'(0) + \frac{x^3}{1\cdot 2\cdot 3} f''(0)$	$\int Udx = xU - \int xU'dx$
$\int U^m U'dx = \frac{U^{m+1}}{m+1} + C$	$\int (aU+b)^m U'dx = \frac{(aU+b)^{m+1}}{a(m+1)} + C$
$\int \frac{U'}{U^m} dx = -\frac{1}{(m-1)U^{m-1}} + C$	$\int \frac{U'}{(aU+b)^2} dx = -\frac{U}{b(aU+b)} + C$
$\int \frac{U'}{aU+b} dx = \frac{1}{a}\log(aU+b)$	$\int \frac{U'}{(a-U)^2} dx = \frac{1}{a-U} = \frac{U}{a(a-U)}$

$\int a.dx = ax + C$	$\int \cos x dx = \sin x + C$
$\int x^n dx = \frac{x^{n+1}}{n+1} + C \quad ; \quad for \quad n \neq -1$	$\int \sin x dx = -\cos x + C$
$\int \frac{dx}{x} = \ln\lvert x\rvert + C$	$\int \tan x dx = \ln\lvert\sec x\rvert + C$
$\int e^{ax} dx = \frac{1}{a} e^{ax} + C$	$\int \cot x dx = \ln\lvert\sin x\rvert + C$
$\int x e^{ax} dx = \frac{e^{ax}}{a^2}(ax - 1)$	$\int \csc^2 x dx = -\cot x$
$\int x^2 e^{ax} dx = \frac{e^{ax}}{a^3}\left(a^2 x^2 - 2ax + 2\right)$	$\int \csc x \cot x dx = -\csc x$
$\int \frac{e^{ax}}{x} dx = \ln x + \frac{ax}{1.1!} + \frac{(ax)^2}{2.2!} + \ldots$	$\int \sec^2 x dx = \tan x$
$\int \frac{dx}{e^{ax}} = -\frac{1}{a e^{ax}}$	$\int \sec x \tan x dx = \sec x$
$\int a^x dx = \int e^{x \ln a} dx = \frac{a^x}{\ln a}$	$\int \cosh x dx = \sinh x$
$\int \ln ax dx = x \ln ax - x$	$\int \sinh x dx = \cosh x$
$\int x \ln x dx = \frac{1}{2} x^2 \ln x - \frac{1}{4} x^2$	$\int \frac{dx}{x \ln ax} = \ln\lvert\ln ax\rvert$
$\int x^n \ln x dx = \frac{x^{n+1}}{n+1}\left(\ln x - \frac{1}{n+1}\right)$	
$\int \frac{dx}{ax+b} = \frac{1}{a} \ln\lvert ax+b\rvert$	$\int (ax+b)^n dx = \frac{(ax+b)^{n+1}}{a(n+1)}$
$\int \frac{1}{ax+b} dx = \frac{1}{a} \ln\lvert ax+b\rvert$	$\int \frac{dx}{x(ax+b)} = \frac{1}{b} \ln\left\lvert\frac{x}{ax+b}\right\rvert$

$$\int \frac{x}{ax+b}\,dx = \frac{x}{a} - \frac{b}{a^2}\ln\left|ax+b\right|$$

$$\int \frac{1}{ax^2+b}\,dx = \frac{1}{2a}\ln\left|ax^2+b\right|$$

$$\int \frac{dx}{ax^2+bx} = \frac{1}{b}\ln\left|\frac{x}{ax+b}\right|$$

$$\int \frac{x}{(ax+b)^2}\,dx = \frac{1}{a^2}\left[\ln\left|ax+b\right| + \frac{b}{ax+b}\right]$$

$$\int x(ax+b)^n\,dx = \frac{(ax+b)^{n+1}}{a^2}\left[\frac{ax+b}{n+2} - \frac{b}{n+1}\right] \qquad n \neq -1,-2$$

$$\int \left(\sqrt{ax+b}\right)^n dx = \frac{2}{a}\frac{\left(\sqrt{ax+b}\right)^{n+2}}{n+2} \qquad n \neq -2$$

$$\int \frac{\sqrt{ax+b}}{x}\,dx = 2\sqrt{ax+b} + b\int \frac{dx}{x\sqrt{ax+b}}$$

$$\int \frac{dx}{x\sqrt{ax+b}} = \frac{1}{\sqrt{b}}\ln\left|\frac{\sqrt{ax+b}-\sqrt{b}}{\sqrt{ax+b}+\sqrt{b}}\right|$$

$$\int \frac{\sqrt{ax+b}}{x^2}\,dx = -\frac{\sqrt{ax+b}}{x} + \frac{a}{2}\int \frac{dx}{x\sqrt{ax+b}}$$

$$\int \frac{dx}{x\sqrt{ax-b}} = \frac{2}{\sqrt{b}}\tan^{-1}\sqrt{\frac{ax-b}{b}}$$

$$\int \frac{dx}{x^2\sqrt{ax+b}} = -\frac{\sqrt{ax+b}}{bx} - \frac{a}{2b}\int \frac{dx}{x\sqrt{ax+b}}$$

$$\int \frac{dx}{a^2+x^2} = \frac{1}{a}\tan^{-1}\frac{x}{a}$$

$$\int \frac{dx}{\left(a^2+x^2\right)^2} = \frac{x}{2a^2\left(a^2+x^2\right)} + \frac{1}{2a^3}\tan^{-1}\frac{x}{a}$$

$$\int \frac{dx}{\sqrt{a^2+x^2}} = \ln\left|x+\sqrt{a^2+x^2}\right| = \sinh^{-1}\frac{x}{a}$$

$$\int \frac{dx}{x\sqrt{a^2+x^2}} = -\frac{1}{a}\ln\left|\frac{a+\sqrt{a^2+x^2}}{x}\right| = -\frac{1}{a}\operatorname{csch}^{-1}\left|\frac{u}{a}\right|$$

$$\int \sqrt{a^2+x^2}\,dx = \frac{x}{2}\sqrt{a^2+x^2} + \frac{a^2}{2}\ln\left|x+\sqrt{a^2+x^2}\right|$$

$$\int \frac{\sqrt{a^2+x^2}}{x}\,dx = \sqrt{a^2+x^2} - a\ln\left|\frac{a+\sqrt{a^2+x^2}}{x}\right|$$

$$\int x^2\sqrt{a^2+x^2}\,dx = \frac{x}{8}\left(a^2+2x^2\right)\sqrt{a^2+x^2} - \frac{a^4}{8}\ln\left(x+\sqrt{a^2+x^2}\right)$$

$$\int \frac{x^2}{\sqrt{a^2+x^2}}\,dx = -\frac{a^2}{2}\ln\left(x+\sqrt{a^2+x^2}\right) + \frac{x\sqrt{a^2+x^2}}{2}$$

$$\int \frac{\sqrt{a^2+x^2}}{x^2}\,dx = \ln\left(x+\sqrt{a^2+x^2}\right) - \frac{\sqrt{a^2+x^2}}{x}$$

$$\int \frac{dx}{x^2\sqrt{a^2+x^2}} = -\frac{\sqrt{a^2+x^2}}{a^2x}$$

$$\int \frac{dx}{a^2-x^2} = \frac{1}{2a}\ln\left|\frac{a+x}{a-x}\right| \quad \text{or} \quad \frac{1}{a}\tanh^{-1}\frac{x}{a}$$

$$\int \frac{x\,dx}{a^2-x^2} = \frac{1}{2a}\ln\left|a^2-x^2\right|$$

$$\int \frac{x^2 dx}{a^2 - x^2} = -x + \frac{a}{2} \ln \left| \frac{a+x}{a-x} \right|$$

$$\int \frac{dx}{x\left(a^2 - x^2\right)} = \frac{1}{2a^2} \ln \left| \frac{x^2}{a^2 - x^2} \right|$$

$$\int \frac{dx}{x^2\left(a^2 - x^2\right)} = -\frac{1}{a^2 x} + \frac{1}{2a^2} \ln \left| \frac{a+x}{a-x} \right|$$

$$\int \frac{dx}{\left(a^2 - x^2\right)^2} = \frac{x}{2a^2\left(a^2 - x^2\right)} + \frac{1}{4a^3} \ln \left| \frac{a+x}{a-x} \right|$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1} \frac{x}{a}$$

$$\int \frac{xdx}{\sqrt{a^2 - x^2}} = -\sqrt{a^2 - x^2}$$

$$\int \frac{dx}{x\sqrt{a^2 - x^2}} = -\frac{1}{a} \ln \left| \frac{a + \sqrt{a^2 - x^2}}{x} \right|$$

$$\int \frac{dx}{x^2\sqrt{a^2 - x^2}} = -\frac{\sqrt{a^2 - x^2}}{a^2 x}$$

$$\int \sqrt{a^2 - x^2}\, dx = \frac{x}{2}\sqrt{a^2 - x^2} + \frac{a^2}{2} \sin^{-1} \frac{x}{a}$$

$$\int x\sqrt{a^2 - x^2}\, dx = -\frac{1}{3}\left(a^2 - x^2\right)^{3/2}$$

$$\int x^2\sqrt{a^2 - x^2}\, dx = -\frac{x\left(a^2 - x^2\right)^{3/2}}{4} + \frac{a^2 x\sqrt{a^2 - x^2}}{8} + \frac{a^4}{8} \sin^{-1} \frac{x}{a}$$

$$\int \frac{\sqrt{a^2 - x^2}}{x}\, dx = \sqrt{a^2 - x^2} - a \ln \left| \frac{a + \sqrt{a^2 - x^2}}{x} \right|$$

$$\int \frac{\sqrt{a^2 - x^2}}{x^2}\, dx = -\sin^{-1} \frac{x}{a} - \frac{\sqrt{a^2 - x^2}}{x}$$

$$\int \frac{x^2}{\sqrt{a^2 - x^2}}\, dx = \frac{a^2}{2} \sin^{-1} \frac{x}{a} - \frac{x}{2}\sqrt{a^2 - x^2}$$

$$\int \frac{dx}{x^2 - a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| \quad \textit{or} \quad -\frac{1}{a} \coth^{-1} \frac{x}{a}$$

$$\int \frac{xdx}{x^2 - a^2} = \frac{1}{2} \ln \left| x^2 - a^2 \right|$$

$$\int \frac{x^2 dx}{x^2 - a^2} = x + \frac{a}{2} \ln \left| \frac{x-a}{x+a} \right|$$

$$\int \frac{xdx}{x\left(x^2 - a^2\right)} = \frac{1}{2a^2} \ln \left| \frac{x^2 - a^2}{x^2} \right|$$

$$\int \frac{xdx}{x^2\left(x^2 - a^2\right)} = \frac{1}{2a^2 x} + \frac{1}{2a^3} \ln \left| \frac{x-a}{x+a} \right|$$

$$\int \frac{xdx}{\left(x^2 - a^2\right)^2} = \frac{-1}{2\left(x^2 - a^2\right)}$$

$$\int \frac{dx}{\left(x^2 - a^2\right)^2} = \frac{-x}{2a^2\left(x^2 - a^2\right)} - \frac{1}{4a^3} \ln \left| \frac{x-a}{x+a} \right|$$

$$\int x^2\sqrt{x^2 - a^2}\, dx = \frac{a^4}{8} \sin^{-1} \frac{x}{a} - \frac{1}{8} x\sqrt{x^2 - a^2}\left(a^2 - 2x^2\right)$$

$\int \frac{dx}{\left(x^2-a^2\right)^2} = \frac{x}{2a^2\left(x^2-a^2\right)} + \frac{1}{4a^3}\ln\left\lvert\frac{x+a}{x-a}\right\rvert$	
$\int \frac{dx}{\sqrt{x^2-a^2}} = \cosh^{-1}\frac{x}{a} + C = \ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert$	
$\int \sqrt{x^2-a^2}\,dx = \frac{x}{2}\sqrt{x^2-a^2} - \frac{a^2}{2}\ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert$	
$\int \left(\sqrt{x^2-a^2}\right)^n dx = \frac{x\sqrt{x^2-a^2}}{n+1} - \frac{na^2}{n+1}\int\left(\sqrt{x^2-a^2}\right)^{n-2} dx \qquad n \neq -1$	
$\int \frac{dx}{\left(\sqrt{x^2-a^2}\right)^n} = \frac{x\left(\sqrt{x^2-a^2}\right)^{2-n}}{(2-n)a^2} - \frac{n-3}{(n-2)a^2}\int\frac{dx}{\left(\sqrt{x^2-a^2}\right)^{n-2}} \qquad n \neq -2$	
$\int x\left(\sqrt{x^2-a^2}\right)^n dx = \frac{\left(\sqrt{x^2-a^2}\right)^{n+2}}{n+2} \qquad n \neq -2$	
$\int x^2\sqrt{x^2-a^2}\,dx = \frac{x}{8}\left(2x^2-a^2\right)\sqrt{x^2-a^2} - \frac{a^4}{8}\ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert$	
$\int \frac{\sqrt{x^2-a^2}}{x^2}dx = \ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert - \frac{\sqrt{x^2-a^2}}{x}$	
$\int \frac{x^2}{\sqrt{x^2-a^2}}dx = \frac{a^2}{2}\ln\left\lvert x+\sqrt{x^2-a^2}\right\rvert + \frac{x}{2}\sqrt{x^2-a^2}$	
$\int \frac{dx}{x\sqrt{x^2-a^2}} = \frac{1}{a}\sec^{-1}\left\lvert\frac{x}{a}\right\rvert + C = \frac{1}{a}\cos^{-1}\left\lvert\frac{a}{x}\right\rvert$	
$\int \frac{\sqrt{x^2-a^2}}{x}dx = \sqrt{x^2-a^2} - a\sec^{-1}\left\lvert\frac{x}{a}\right\rvert$	$\int \frac{dx}{x^2\sqrt{x^2-a^2}} = \frac{\sqrt{x^2-a^2}}{a^2x}$
$\int \sin ax\,dx = -\frac{1}{a}\cos ax$	$\int \sin^2 ax\,dx = \frac{x}{2} - \frac{\sin 2ax}{4a}$
$\int x\sin ax\,dx = \frac{\sin ax}{a^2} - \frac{x\cos ax}{a}$	$\int x^2\sin ax\,dx = \frac{2x}{a^2}\sin ax + \left(\frac{2}{a^3} - \frac{x^2}{a}\right)\cos ax$

$\int x\sin^2 ax dx = \frac{x^2}{4} - \frac{x\sin 2ax}{4a} - \frac{\cos 2ax}{8a^2}$	$\int \frac{\sin ax}{x} dx = ax - \frac{(ax)^3}{3\cdot 3!} + \frac{(ax)^5}{5\cdot 5!} - \dots$
$\int \frac{dx}{\sin ax} = \frac{1}{a}\ln(\csc ax - \cot ax) = \frac{1}{a}\ln\left(\tan\frac{ax}{2}\right)$	
$\int \sin^n ax dx = -\frac{\sin^{n-1} ax\cos ax}{na} + \frac{n-1}{n}\int \sin^{n-2} ax dx$	
$\int \cos ax dx = \frac{1}{a}\sin ax$	$\int \cos^2 ax dx = \frac{x}{2} + \frac{\sin 2ax}{4a} + C$
$\int x\cos ax dx = \frac{\cos ax}{a^2} + \frac{x\sin ax}{a}$	$\int x^2\cos ax dx = \frac{2x}{a^2}\cos ax + \left(\frac{x^2}{a} - \frac{2}{a^3}\right)\sin ax$
$\int x\cos^2 ax dx = \frac{x^2}{4} + \frac{x\sin 2ax}{4a} + \frac{\cos 2ax}{8a^2}$	$\int \frac{\cos ax}{x} dx = \ln x - \frac{(ax)^2}{2\cdot 2!} + \frac{(ax)^4}{4\cdot 4!} - \frac{(ax)^6}{6\cdot 6!} + \dots$
$\int \frac{dx}{\cos ax} = \frac{1}{a}\ln(\sec ax + \tan ax) = \frac{1}{a}\ln\tan\left(\frac{\pi}{4} + \frac{ax}{2}\right)$	
$\int \cos^n ax dx = \frac{\cos^{n-1} ax\cdot\sin ax}{na} + \frac{n-1}{n}\int \cos^{n-2} ax dx$	
$\int \frac{\sin ax}{\cos ax} dx = -\frac{1}{a}\ln\lvert\cos ax\rvert + C$	$\int \frac{\cos ax}{\sin ax} dx = \frac{1}{a}\ln\lvert\sin ax\rvert + C$
$\int \cos^n ax\cdot\sin ax dx = -\frac{\cos^{n+1} ax}{(n+1)a} + C, \quad n \neq -1$	$\int \sin^n ax\cos ax dx = \frac{\sin^{n+1} ax}{(n+1)a} + C, \quad n \neq -1$
$\int \sin ax\cos ax dx = -\frac{\cos 2ax}{4a} + C$	$\int \frac{dx}{\sin x\cos x} = \ln\lvert\tan x\rvert + C$
$\int \frac{dx}{\sin x\cos^2 x} = -\frac{1}{\cos x} + \ln\left\lvert\tan\frac{x}{2}\right\rvert + C$	$\int \frac{dx}{\sin^n x\cos^2 x} = -\frac{1}{\sin^{n-1} x\cos x} + n\int \frac{dx}{\sin^n x}$
$\int \sin^n ax\cdot\cos^m ax dx = -\frac{\sin^{n-1} ax\cos^{m+1} ax}{(m+n)a} + \frac{n-1}{m+n}\int \sin^{n-2} ax\cdot\cos^m ax dx, \quad n \neq -m$	

$$\int \sin^n ax \cdot \cos^m axdx = \frac{\sin^{n+1} ax \cos^{m-1} ax}{(m+n)a} + \frac{m-1}{m+n}\int \sin^n ax \cdot \cos^{m-2} axdx, \quad n \neq -m$$

$$\int \sin(ax+b)\,dx = -\frac{1}{a}\cos(ax+b) + C$$

$$\int \cos(ax+b)\,dx = \frac{1}{a}\sin(ax+b) + C$$

$$\int \sin ax \cos bxdx = -\frac{\cos(a+b)x}{2(a+b)} - \frac{\cos(a-b)x}{2(a-b)} + C, \quad a^2 \neq b^2$$

$$\int \sin ax \sin bxdx = \frac{\sin(a-b)x}{2(a-b)} - \frac{\sin(a+b)x}{2(a+b)} + C, \quad a^2 \neq b^2$$

$$\int \cos ax \cos bxdx = \frac{\sin(a+b)x}{2(a+b)} + \frac{\sin(a-b)x}{2(a-b)} + C, \quad a^2 \neq b^2$$

$$\int \frac{dx}{b+c\sin ax} = \frac{-2}{a\cdot\sqrt{b^2-c^2}}\tan^{-1}\left[\sqrt{\frac{b-c}{b+c}}\tan\left(\frac{\pi}{4}-\frac{ax}{2}\right)\right] + C, \qquad b^2 > c^2$$

$$\int \frac{dx}{b+c\sin ax} = \frac{-1}{a\cdot\sqrt{c^2-b^2}}\ln\left|\frac{c+b\sin ax+\sqrt{c^2-b^2}\cos ax}{b+c\sin ax}\right| + C, \qquad b^2 < c^2$$

$$\int \frac{dx}{b+c\cos ax} = \frac{2}{a\cdot\sqrt{b^2-c^2}}\tan^{-1}\left[\sqrt{\frac{b-c}{b+c}}\tan\left(\frac{ax}{2}\right)\right] + C, \qquad b^2 > c^2$$

$$\int \frac{dx}{b+\cos ax} = \frac{1}{a\cdot\sqrt{c^2-b^2}}\ln\left|\frac{c+b\cos ax+\sqrt{c^2-b^2}\sin ax}{b+c\cos ax}\right| + C, \qquad b^2 < c^2$$

$$\int \frac{dx}{1+\sin ax} = -\frac{1}{a}\tan\left(\frac{\pi}{4}-\frac{ax}{2}\right) + C$$

$$\int \frac{dx}{1-\sin ax} = \frac{1}{a}\tan\left(\frac{\pi}{4}+\frac{ax}{2}\right) + C$$

$$\int \frac{dx}{1+\cos ax} = -\frac{1}{a}\tan\left(\frac{ax}{2}\right) + C$$

$$\int \frac{dx}{1-\cos ax} = -\frac{1}{a}\cot\left(\frac{ax}{2}\right) + C$$

$$\int x\sin axdx = \frac{1}{a^2}\sin ax - \frac{x}{a}\cos ax + C$$

$$\int x\cos axdx = \frac{1}{a^2}\cos ax + \frac{x}{a}\sin ax + C$$

$$\int x^n \sin axdx = -\frac{x^n}{a}\cos ax + \frac{n}{a}\int x^{n-1}\cos axdx$$

$$\int x^n \cos axdx = \frac{x^n}{a}\sin ax - \frac{n}{a}\int x^{n-1}\sin axdx$$

$\int \tan ax dx = \frac{1}{a}\ln\lvert\sec ax\rvert + C$	$\int \cot ax dx = \frac{1}{a}\ln\lvert\sin ax\rvert + C$
$\int \tan^2 ax dx = \frac{1}{a}\tan ax - x + C$	$\int \cot^2 ax dx = -\frac{1}{a}\cot ax - x + C$
$\int \tan^n ax dx = \frac{\tan^{n-1} ax}{a(n-1)} - \int \tan^{n-2} ax dx, \quad n \neq 1$	$\int \cot^n ax dx = -\frac{\cot^{n-1} ax}{a(n-1)} - \int \cot^{n-2} ax dx, \quad n \neq 1$
$\int \sec ax dx = \frac{1}{a}\ln\lvert\sec ax + \tan ax\rvert + C$	$\int \csc ax dx = -\frac{1}{a}\ln\lvert\csc ax + \cot ax\rvert + C$
$\int \sec^2 ax dx = \frac{1}{a}\tan ax + C$	$\int \csc^2 ax dx = -\frac{1}{a}\cot ax + C$
$\int \sec^3 x\, dx = \frac{1}{2}\sec x \tan x + \frac{1}{2}\ln\lvert\sec x + \tan x\rvert$	
$\int \sec^n ax \tan ax dx = \frac{\sec^n ax}{na} + C, \quad n \neq 0$	$\int \csc^n ax \cot ax dx = -\frac{\csc^n ax}{na} + C, \quad n \neq 0$
$\int \sec^n ax dx = \frac{\sec^{n-2} ax \tan ax}{a(n-1)} + \frac{n-2}{n-1}\int \sec^{n-2} ax dx, \quad n \neq 1$	
$\int \csc^n ax dx = -\frac{\csc^{n-2} ax \cot ax}{a(n-1)} + \frac{n-2}{n-1}\int \csc^{n-2} ax dx, \quad n \neq 1$	
$\int \sin^{-1} ax dx = x\sin^{-1} ax + \frac{1}{a}\sqrt{1-a^2x^2} + C$	$\int \cos^{-1} ax dx = x\cos^{-1} ax - \frac{1}{a}\sqrt{1-a^2x^2} + C$
$\int \tan^{-1} ax dx = x\tan^{-1} ax - \frac{1}{2a}\ln\left(1+a^2x^2\right) + C$	
$\int x^n \sin^{-1} ax dx = \frac{x^{n+1}}{n+1}\sin^{-1} ax - \frac{a}{n+1}\int \frac{x^{n+1}dx}{\sqrt{1-a^2x^2}}, \quad n \neq -1$	
$\int x^n \cos^{-1} ax dx = \frac{x^{n+1}}{n+1}\cos^{-1} ax + \frac{a}{n+1}\int \frac{x^{n+1}dx}{\sqrt{1-a^2x^2}}, \quad n \neq -1$	

$\int x^n \tan^{-1} ax dx = \frac{x^{n+1}}{n+1}\tan^{-1} ax - \frac{a}{n+1}\int \frac{x^{n+1}dx}{1+a^2x^2}, \quad n \neq -1$	
$\int xa^x dx = \frac{xa^x}{\ln a} - \frac{a^x}{(\ln a)^2} + C$	$\int x^2 a^x dx = \frac{a^x}{\ln a}\left(x^2 - \frac{2^x}{\ln a} + \frac{2}{(\ln a)^2}\right) + C$
$\int b^{ax} dx = \frac{1}{a}\frac{b^{ax}}{\ln b} + C$	$\int x^n e^{ax} dx = \frac{1}{a}x^n e^{ax} - \frac{n}{a}\int x^{n-1}e^{ax}dx$
$\int x^n a^x dx = \frac{a^x}{\ln a}\left\{x^n - \frac{nx^{n-1}}{\ln a} + \frac{n(n-1)x^{n-2}}{(\ln a)^2} - \frac{n(n-1)(n-2)x^{n-3}}{(\ln a)^3} + \cdots + \frac{n!}{(\ln a)^n}\right\}$	
$\int x^n b^{ax} dx = \frac{x^n e^{ax}}{a \ln b} - \frac{n}{a \ln b}\int x^{n-1} b^{ax} dx$	$\int e^{ax}\sin bx dx = \frac{e^{ax}}{a^2+b^2}(a\sin bx - b\cos bx) + C$
$\int e^{ax}\cos bx dx = \frac{e^{ax}}{a^2+b^2}(a\cos bx + b\sin bx) + C$	$\int x^{-1}(\ln ax)^m dx = \frac{(\ln ax)^{m+1}}{m+1} + C, \quad m \neq -1$
$\int x^n (\ln ax)^m dx = \frac{x^{n+1}(\ln ax)^m}{n+1} - \frac{m}{n+1}\int x^n (\ln ax)^{m-1} dx, \quad n \neq -1$	
$\int \frac{dx}{\sqrt{2ax-x^2}} = \sin^{-1}\left(\frac{x-a}{a}\right) + C$	
$\int \sqrt{2ax-x^2}dx = \frac{x-a}{2}\sqrt{2ax-x^2} + \frac{a^2}{2}\sin^{-1}\left(\frac{x-a}{a}\right) + C$	
$\int \left(\sqrt{2ax-x^2}\right)^n dx = \frac{(x-a)\left(\sqrt{2ax-x^2}\right)^n}{n+1} + \frac{na^2}{n+1}\int \left(\sqrt{2ax-x^2}\right)^{n-2} dx$	
$\int \frac{dx}{\left(\sqrt{2ax-x^2}\right)^n} = \frac{(x-a)\left(\sqrt{2ax-x^2}\right)^{2-n}}{(n-2)a^2} + \frac{n-3}{(n-2)a^2}\int \frac{dx}{\left(\sqrt{2ax-x^2}\right)^{n-2}}$	
$\int x\sqrt{2ax-x^2}dx = \frac{(x+a)(2x-3a)\sqrt{2ax-x^2}}{6} + \frac{a^3}{2}\sin^{-1}\left(\frac{x-a}{a}\right) + C$	

$\int \frac{\sqrt{2ax-x^2}}{x}\,dx = \sqrt{2ax-x^2} + a\sin^{-1}\left(\frac{x-a}{a}\right) + C$	$\int \frac{\sqrt{2ax-x^2}}{x^2}\,dx = -2\sqrt{\frac{2a-x}{x}} - \sin^{-1}\left(\frac{x-a}{a}\right) + C$
$\int \frac{xdx}{\sqrt{2ax-x^2}} = a\sin^{-1}\left(\frac{x-a}{a}\right) - \sqrt{2ax-x^2} + C$	$\int \frac{dx}{x\sqrt{2ax-x^2}} = -\frac{1}{a}\sqrt{\frac{2a-x}{x}} + C$
$\int \sinh ax dx = \frac{1}{a}\cosh ax + C$	$\int \cosh ax dx = \frac{1}{a}\sinh ax + C$
$\int \sinh^2 ax dx = \frac{\sinh 2ax}{4a} - \frac{x}{2} + C$	$\int \cosh^2 ax dx = \frac{\sinh 2ax}{4a} + \frac{x}{2} + C$
$\int \sinh^n ax dx = \frac{\sinh^{n-1} ax \cosh ax}{na} - \frac{n-1}{n}\int \sinh^{n-2} ax dx, \quad n \neq 0$	
$\int \cosh^n ax dx = \frac{\cosh^{n-1} ax \sinh ax}{na} + \frac{n-1}{n}\int \cosh^{n-2} ax dx, \quad n \neq 0$	
$\int x \cdot \sinh ax dx = \frac{x}{a}\cosh ax - \frac{1}{a^2}\sinh ax + C$	$\int x \cdot \cosh ax dx = \frac{x}{a}\sinh ax - \frac{1}{a^2}\cosh ax + C$
$\int x^n \sinh ax dx = \frac{x^n}{a}\cosh ax - \frac{n}{a}\int x^{n-1}\cosh ax dx$	$\int x^n \cosh ax dx = \frac{x^n}{a}\sinh ax - \frac{n}{a}\int x^{n-1}\sinh ax dx$
$\int \tanh ax dx = \frac{1}{a}\ln\left(\cosh ax\right) + C$	$\int \coth ax dx = \frac{1}{a}\ln\left(\sinh ax\right) + C$
$\int \tanh^2 ax dx = x - \frac{1}{a}\tanh ax + C$	$\int \coth^2 ax dx = x - \frac{1}{a}\coth ax + C$
$\int \tanh^n ax dx = \frac{\tanh^{n-1} ax}{(n-1)a} + \int \tanh^{n-2} ax dx, \quad n \neq 1$	
$\int \coth^n ax dx = \frac{\coth^{n-1} ax}{(n-1)a} + \int \coth^{n-2} ax dx, \quad n \neq 1$	
$\int \operatorname{sech} ax\, dx = \frac{1}{a}\sin^{-1}\left(\tanh ax\right) + C$	$\int \operatorname{csch} ax\, dx = \frac{1}{a}\ln\left\|\tanh\frac{ax}{2}\right\| + C$
$\int \operatorname{sech}^2 ax\, dx = \frac{1}{a}\tanh ax + C$	$\int \operatorname{csch}^2 ax\, dx = -\frac{1}{a}\coth ax + C$

$\int \operatorname{sech}^n ax\, dx = \frac{\operatorname{sech}^{n-2} ax \tanh ax}{(n-1)a} + \frac{n-2}{n-1}\int \operatorname{sech}^{n-2} ax\, dx, \quad n \neq 1$	
$\int \operatorname{csch}^n ax\, dx = -\frac{\operatorname{csch}^{n-2} ax \coth ax}{(n-1)a} - \frac{n-2}{n-1}\int \operatorname{csch}^{n-2} ax\, dx, \quad n \neq 1$	
$\int \operatorname{sech}^n ax \tanh ax\, dx = -\frac{\operatorname{sech}^n ax}{na} + C, \quad n \neq 0$	$\int \operatorname{csch}^n ax \coth ax\, dx = -\frac{\operatorname{csch}^n ax}{na} + C, \quad n \neq 0$
$\int e^{ax} \sinh bx = \frac{e^{ax}}{2}\left[\frac{e^{bx}}{a+b} - \frac{e^{-bx}}{a-b}\right] + C, \quad a^2 \neq b^2$	$\int e^{ax} \cosh bx = \frac{e^{ax}}{2}\left[\frac{e^{bx}}{a+b} + \frac{e^{-bx}}{a-b}\right] + C, \quad a^2 \neq b^2$
$\int_0^\infty x^{n-1} e^{-x} dx = \Gamma(n) = (n-1)! \quad n > 0$	$\int_0^\infty e^{-ax^2} dx = \frac{1}{2}\sqrt{\frac{\pi}{a}}, \quad a > 0$
$\int_0^{\pi/2} \sin^n x dx = \int_0^{\pi/2} \cos^n x dx = \begin{cases} \frac{1\cdot 3\cdot 5\cdots\cdots(n-1)}{2\cdot 4\cdot 6\cdots\cdots n}\cdot\frac{\pi}{2} & n \text{ even integer} \geq 2 \\ \frac{2\cdot 4\cdot 6\cdots\cdots(n-1)}{3\cdot 5\cdots\cdots\cdots\cdots n} & n \text{ odd integer} \geq 3 \end{cases}$	