$$\int x^n dx = \frac{x^{n+1}}{n+1} \quad \neq -1)$$
$$\int \frac{1}{x} dx = \ln |x|$$
$$\int e^x dx = e^x$$
$$\int a^x dx = \frac{1}{\ln a} a^x$$
$$\int \sin x dx = -\cos x$$
$$\int \cos x dx = \sin x$$
$$\int \tan x dx = -\ln |\cos x|$$
$$\int \cot x dx = \ln |\sin x|$$
$$\int \sec x dx = \ln |\sec x + \tan x|$$
$$\int \csc x dx = \ln |\csc x - \cot x|$$
$$\int \arcsin \frac{x}{a} dx = x \arcsin \frac{x}{a} + \sqrt{(a^2 - x^2)} \ (a > 0)$$
$$\int \arccos \frac{x}{a} dx = x \arccos \frac{x}{a} - \sqrt{(a^2 - x^2)} \ (a > 0)$$
$$\int \arctan \frac{x}{a} dx = x \arctan \frac{x}{a} - \frac{1}{2} a \ln \left(1 + \frac{x^2}{a^2}\right) \ (a > 0)$$
$$\int \sin^2 mx dx = \frac{1}{2} \frac{-\cos mx \sin mx + mx}{m}$$
$$\int \cos^2 mx dx = \frac{1}{2} \frac{\cos mx \sin mx + mx}{m}$$
$$\int \sec^2 x dx = \tan x$$
$$\int \csc^2 x dx = -\cot x$$
$$\int \sin^n x dx = -\frac{\sin^{n-1} x \cos x}{n} + \frac{n-1}{n} \int \sin^{n-2} x dx$$
$$\int \cos^n x dx = \frac{\cos^{n-1} x \sin x}{n} + \frac{n-1}{n} \int \cos^{n-2} x dx$$
$$\int \tan^n x dx \quad \frac{\tan^{n-1} x}{n-1} - \int \tan^{n-2} x dx \quad \neq 1)$$
$$\int \cot^n x dx \quad -\frac{\cot^{n-1} x}{n-1} - \int \cot^{n-2} x dx \quad \neq 1)$$
$$\int \sec^n x dx \quad \frac{\tan x \sec^{n-2} x}{n-1} + \frac{n-2}{n-1} \int \sec^{n-2} x dx \quad \neq 1)$$
$$\int \csc^n x dx \quad -\frac{\cot x \csc^{n-2} x}{n-1} + \frac{n-2}{n-1} \int \csc^{n-2} x dx \quad \neq 1)$$
$$\int \sinh x dx = \cosh x$$
$$\int \cosh x dx = \sinh x$$
$$\int \tanh x dx = \ln |\cosh x|$$
$$\int \coth x dx = \ln |\sinh x|$$
$$\int \sec \quad x dx = \arctan(\sinh x)$$
$$\int \csc \quad x dx = \ln \left|\tanh \frac{x}{2}\right| = -\frac{1}{2} \ln \frac{\cosh x + 1}{\cosh x - 1}$$
$$\int \sinh^2 x dx = \frac{1}{4} \sinh 2x - \frac{1}{2} x$$
$$\int \cosh^2 x dx = \frac{1}{4} \sinh 2x + \frac{1}{2} x$$
$$\int \sec \ {}^2 x dx = \tanh x$$
$$\int \sinh^{-1} \frac{x}{a} dx = x \sinh^{-1} \frac{x}{a} - \sqrt{(a^2 + x^2)} \ (a > 0)$$
$$\int \cosh^{-1} \frac{x}{a} dx = \left\{ \begin{array}{l} x \cosh^{-1} \frac{x}{a} - \sqrt{x^2 - a^2} \left[\cosh^{-1} \frac{x}{a} > 0, a > 0\right] \\ x \cosh^{-1} \frac{x}{a} + \sqrt{x^2 - a^2} \left[\cosh^{-1} \frac{x}{a} < 0, a > 0\right] \end{array} \right\}$$
$$\int \tanh^{-1} \frac{x}{a} dx = x \tanh^{-1} \frac{x}{a} + \frac{1}{2} a \ln \left(1 - \frac{x^2}{a^2}\right)$$

$$\int \frac{1}{\sqrt{a^2+x^2}}dx = \ln\left(x+\sqrt{(a^2+x^2)}\right) = \sinh^{-1}\frac{x}{a}\ \ (a>0)$$
$$\int \frac{1}{a^2+x^2}dx = \frac{1}{a}\arctan\frac{x}{a}\ \ (a>0)$$
$$\int \sqrt{a^2-x^2}dx = \frac{1}{2}x\sqrt{(a^2-x^2)} - \frac{a^2}{2}\arcsin\frac{x}{a}\ \ (a>0)$$
$$\int (a^2-x^2)^{3/2}dx = \frac{x}{2}\sqrt{a^2-x^2} + \frac{a^2}{2}\arcsin\frac{x}{a}\ \ (a>0)$$
$$\int \frac{1}{\sqrt{a^2-x^2}}dx = \arcsin\frac{x}{a}\ \ (a>0)$$
$$\int \frac{1}{a^2-x^2}dx = \frac{1}{2a}\ln\left|\frac{a+x}{a-x}\right|$$
$$\int \frac{1}{(a^2-x^2)^{3/2}}dx = \frac{x}{a^2\sqrt{(a^2-x^2)}}$$
$$\int \sqrt{x^2\pm a^2}dx = \frac{1}{2}x\sqrt{(a^2\pm x^2)} \pm \frac{1}{2}a^2\ln\left|x+\sqrt{(a^2\pm x^2)}\right|$$
$$\int \frac{1}{\sqrt{x^2-a^2}}dx = \ln\left|x+\sqrt{(x^2-a^2)}\right| = \cosh^{-1}\frac{x}{a}\ \ (a>0)$$
$$\int \frac{1}{x(a+bx)}dx = \frac{1}{a}\ln\left|\frac{x}{a+bx}\right|$$
$$\int x\sqrt{a+bx}dx = \frac{2(3bx-2a)(a+bx)^{3/2}}{15b^2}$$
$$\int \frac{\sqrt{a+bx}}{x}dx = 2\sqrt{a+bx} + a\int\frac{1}{x\sqrt{a+bx}}dx$$
$$\int \frac{x}{\sqrt{a+bx}}dx = \frac{2(bx-2a)\sqrt{a+bx}}{3b^2}$$
$$\int \frac{1}{x\sqrt{a+bx}}dx = \left\{\begin{array}{c} \frac{1}{\sqrt{a}}\ln\left|\frac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}\right|(a>0) \\ \frac{2}{\sqrt{-a}}\arctan\sqrt{\frac{a+bx}{-a}}(a<0) \end{array}\right\}$$
$$\int \frac{\sqrt{a^2-x^2}}{x}dx = \sqrt{a^2-x^2} - a\ln\left|\frac{a+\sqrt{a^2-x^2}}{x}\right|$$
$$\int x\sqrt{a^2-x^2}dx = -\frac{1}{3}\left(\sqrt{(a^2-x^2)}\right)^3$$
$$\int x^2\sqrt{a^2-x^2}dx = \frac{x}{8}(2x^2-a^2)\sqrt{a^2-x^2} + \frac{a^2}{8}\arcsin\frac{x}{a}\ \ (a>0)$$
$$\int \frac{1}{x\sqrt{a^2-x^2}}dx = -\frac{1}{a}\ln\left|\frac{a+\sqrt{a^2-x^2}}{x}\right|$$
$$\int \frac{x}{\sqrt{a^2-x^2}}dx = -\sqrt{a^2-x^2}$$
$$\int \frac{x^2}{\sqrt{a^2-x^2}}dx = -\frac{x}{2}\sqrt{a^2-x^2} + \frac{a^2}{2}\arcsin\frac{x}{a}\ \ (a>0)$$
$$\int \frac{\sqrt{x^2+a^2}}{x}dx = \sqrt{x^2+a^2} - a\ln\left|\frac{a+\sqrt{x^2+a^2}}{x}\right|$$
$$\int \frac{\sqrt{x^2-a^2}}{x}dx = \sqrt{x^2-a^2} - a\arccos\frac{a}{|x|}$$
$$\int x\sqrt{x^2\pm a^2}dx = \frac{1}{3}\left(\sqrt{(x^2\pm a^2)}\right)^3$$
$$\int \frac{1}{\sqrt{x^2+a^2}}dx = \frac{1}{a}\ln\left|\frac{x}{a+\sqrt{x^2+a^2}}\right|$$
$$\int \frac{1}{x\sqrt{x^2-a^2}}dx = \frac{1}{a}\arccos\frac{a}{|x|}\ \ (a>0)$$
$$\int \frac{1}{x^2\sqrt{x^2\pm a^2}}dx = \mp\frac{\sqrt{x^2\pm a^2}}{a^2x}$$
$$\int \frac{x}{\sqrt{x^2\pm a^2}}dx = \sqrt{x^2\pm a^2}$$
$$\int \frac{1}{ax^2+bx+c}dx = \left\{\begin{array}{c} \frac{1}{\sqrt{b^2-4ac}}\ln\left|\frac{2ax+b-\sqrt{b^2-4ac}}{2ax+b+\sqrt{b^2-4ac}}\right|(b^2>4ac) \\ \frac{2}{\sqrt{4ac-b^2}}\arctan\frac{2ax+b}{\sqrt{4ac-b^2}}(b^2<4ac) \end{array}\right\}$$
$$\int \frac{x}{ax^2+bx+c}dx = \frac{1}{2a}\ln|ax^2+bx+c| - \frac{b}{2a}\int\frac{1}{ax^2+bx+c}dx$$

$$\int \frac{1}{\sqrt{ax^2+bx+c}}dx = \left\{ \begin{array}{c} \frac{1}{\sqrt{a}} \ln |2ax+b+2\sqrt{a}\sqrt{ax^2+bx+c}| (a>0) \\ \frac{1}{\sqrt{-a}} \arcsin \frac{-2ax-b}{\sqrt{b^2-4ac}} (a<0) \end{array} \right\}$$
$$\int \sqrt{ax^2+bx+c}dx = \frac{2ax+b}{4a}\sqrt{ax^2+bx+c} + \frac{4ac-b^2}{8a} \int \frac{1}{\sqrt{ax^2+bx+c}}dx$$
$$\int \frac{x}{\sqrt{ax^2+bx+c}}dx = \frac{\sqrt{ax^2+bx+c}}{a} - \frac{b}{2a} \int \frac{1}{\sqrt{ax^2+bx+c}}dx$$
$$\int \frac{1}{x\sqrt{ax^2+bx+c}}dx = \left\{ \begin{array}{c} \frac{-1}{\sqrt{c}} \ln \left| \frac{2\sqrt{c}\sqrt{ax^2+bx+c}+bx+2c}{x} \right| (c>0) \\ \frac{1}{\sqrt{-c}} \arcsin \frac{bx+2c}{|x|\sqrt{b^2-4ac}} (c<0) \end{array} \right\}$$
$$\int x^3\sqrt{x^2+a^2}dx = (\tfrac{1}{5}x^2 - \tfrac{2}{15}a^2)\sqrt{(a^2+x^2)^3}$$
$$\int \frac{\sqrt{x^2 \pm a^2}}{x^4}dx = \mp \frac{\sqrt{(a^2+x^2)^3}}{3a^2x^3}$$
$$\int \sin ax \sin bx dx = \frac{1}{2}\frac{\sin(a-b)x}{a-b} - \frac{1}{2}\frac{\sin(a+b)x}{a+b} \ (a^2 \neq b^2)$$
$$\int \sin ax \cos bx dx = -\frac{1}{2}\frac{\cos(a+b)x}{a+b} - \frac{1}{2}\frac{\cos(a-b)x}{a-b} \ (a^2 \neq b^2)$$
$$\int \cos ax \cos bx dx = \frac{1}{2}\frac{\sin(a-b)x}{a-b} + \frac{1}{2}\frac{\sin(a+b)x}{a+b} \ (a^2 \neq b^2)$$
$$\int \sec x \tan x dx = \sec x$$
$$\int \csc x \qquad x dx = -\csc x$$
$$\begin{aligned} \int \cos^m x \sin^n x dx &= \frac{\cos^{m-1} x \sin^{n+1} x}{m+n} + \frac{m-1}{m+n} \int \cos^{m-2} x \sin^n x dx \\ &= -\frac{\sin^{n-1} x \cos^{m+1} x}{m+n} + \frac{n-1}{m+n} \int \cos^m x \sin^{n-2} x dx \end{aligned}$$
$$\int x^n \sin ax dx = -\frac{1}{a}x^n \cos ax + \frac{n}{a}\int x^{n-1} \cos ax dx$$
$$\int x^n \cos ax dx = \frac{1}{a}x^n \sin ax - \frac{n}{a}\int x^{n-1} \sin ax dx$$
$$\int x^n e^{ax} dx = \frac{x^n e^{ax}}{a} - \frac{n}{a}\int x^{n-1} e^{ax} dx$$
$$\int x^n \ln ax dx = x^{n+1} \left[\frac{\ln ax}{n+1} - \frac{1}{(n+1)^2} \right]$$
$$\int x^n (\ln ax)^m dx = \frac{x^{n+1}}{n+1}(\ln ax)^m - \frac{m}{n+1}\int x^n (\ln ax)^{m-1} dx$$
$$\int e^{ax} \sin bx dx = \frac{e^{ax}(a \sin bx - b \cos bx)}{a^2+b^2}$$
$$\int e^{ax} \cos bx dx = \frac{e^{ax}(b \sin bx + a \cos bx)}{a^2+b^2}$$
$$\int \sinh x \tanh x dx = -\sec h \ x$$
$$\int \csc h \ x \coth x dx = -\csc h \ x$$