θ°	$\sin\theta$	$\cos\theta$	$\tan\theta$	$\cot\theta$	$\sec\theta$	$\operatorname{cosec}\theta$
0	0	1	0	∞	1	∞
30	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$	$\sqrt{3}$	$\frac{2}{\sqrt{3}}$	2
45	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{2}}$	1	1	$\sqrt{2}$	$\sqrt{2}$
60	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{1}{\sqrt{3}}$	2	$\frac{2}{\sqrt{3}}$
90	1	0	∞	0	∞	1
120	$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$-\sqrt{3}$	$-\frac{1}{\sqrt{3}}$	-2	$\frac{2}{\sqrt{3}}$
135	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{2}}$	-1	-1	$-\sqrt{2}$	$\sqrt{2}$
150	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$-\frac{1}{\sqrt{3}}$	$-\sqrt{3}$	$-\frac{2}{\sqrt{3}}$	2
180	0	-1	0	$-\infty$	-1	0
270	-1	0	∞	0	∞	-1
360	0	1	0	∞	1	∞

1] $\int x^n dx = \frac{x^{n+1}}{n+1} + C$

2] $\int \frac{1}{x^n} dx = \frac{-1}{(n-1)x^{n-1}} + C$

3] $\int \frac{1}{x} dx = \log|x| + C$

4] $\int e^x dx = e^x + C$

5] $\int a^x dx = \frac{a^x}{\log a} + C$

6] $\int \sin x dx = -\cos x + C$

7] $\int \cos x dx = \sin x + C$

8] $\int \tan x dx = \log|\sec x| + C$

9] $\int \cot x dx = \log|\sin x| + C$

10] $\int \sec x dx = \log|\sec x + \tan x| + C$

11] $\int \operatorname{cosec} x dx = \log|\operatorname{cosec} x - \cot x| + C$

12] $\int \sec^2 x dx = \tan x + C$

13] $\int \operatorname{cosec}^2 x dx = -\cot x + C$

14] $\int \sec x \tan x dx = \sec x + C$

15] $\int \operatorname{cosec} x \cot x dx = -\operatorname{cosec} x + C$

16] $\int [f(x) \pm g(x)] dx = \int f(x) dx \pm \int g(x) dx$

17] $\int k f(x) dx = k \int f(x) dx$

18] $\int k dx = kx + C$

19] $\frac{1}{\text{Co-efficient}}$ of x

20] $\int \frac{f'(x)}{f(x)} dx = \log|f(x)| + C$

21] $\int \frac{f'(x)}{\sqrt{f(x)}} dx = 2\sqrt{f(x)} + C$

22] $\int [f(x)]^n f'(x) dx = \frac{[f(x)]^{n+1}}{n+1} + C$

23] $\sin^2 x = \frac{1 - \cos 2x}{2}$ 24] $\cos^2 x = \frac{1 + \cos 2x}{2}$

25] $\int \frac{1}{a^2 - x^2} dx = \frac{1}{2a} \log\left|\frac{a+x}{a-x}\right| + C$

26] $\int \frac{1}{x^2 - a^2} dx = \frac{1}{2a} \log\left|\frac{x-a}{x+a}\right| + C$

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

28] $a^2 + x^2 \rightarrow x = a \tan\theta$

29] $\int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1}\left(\frac{x}{a}\right) + C$

30] $a^2 - x^2 \rightarrow x = a \sin\theta$

31] $x^2 - a^2 \rightarrow x = a \sec\theta$

32] $\int \frac{1}{\sqrt{a^2 + x^2}} dx = \log\left|x + \sqrt{a^2 + x^2}\right| + C$

33] $\int \frac{1}{\sqrt{x^2 - a^2}} dx = \log\left|x + \sqrt{x^2 - a^2}\right| + C$

34] $\int \sqrt{a^2 - x^2} dx = \frac{x}{2}\sqrt{a^2 - x^2} + \frac{a^2}{2} \sin^{-1}\left(\frac{x}{a}\right) + C$

35] $\int \sqrt{x^2 + a^2} dx = \frac{x}{2}\sqrt{x^2 + a^2} + \frac{a^2}{2} \log\left|x + \sqrt{x^2 + a^2}\right| + C$

36] $\int \sqrt{x^2 - a^2} dx = \frac{x}{2}\sqrt{x^2 - a^2} - \frac{a^2}{2} \log\left|x + \sqrt{x^2 - a^2}\right| + C$

37] $\int I\,II\,dx = I \int II\,dx - \int (I' \int II\,dx)\,dx$

38] $\int \frac{Px + q}{(x+a)(x+b)(x+k)} dx = \frac{A}{x+a} + \frac{B}{x+b} + \frac{C}{x+k}$

39] $\frac{\text{Divided}}{\text{Divisor}} = \text{Quo} + \frac{\text{remainder}}{\text{Divisor}}$

40] $\int e^x [f(x) + f'(x)] dx = e^x f(x) + C$

41] $\int_a^a f(x) dx = 0$ 42] $\int_a^b f(x) dx = \int_a^b f(t) dt$

43] $\int_a^b f(x) dx = -\int_b^a f(x) dx$ 44] $\int_a^b f(x) dx = \int_a^c f(x) dx + \int_c^b f(x) dx$

45] $\int_0^a f(x) dx = \int_0^a f(a+b-x) dx$ 46] $\int_0^a f(x) dx = \int_0^a f(a-x) dx$

47] $\int_0^{2a} f(x) dx = \begin{cases} 2\int_0^a f(x) dx, & f(2a-x) = f(x) \\ 0, & f(2a-x) = -f(x) \end{cases}$

48] $\int_{-a}^{a} f(x) dx = \begin{cases} 2\int_0^a f(x) dx, & \text{when } f(x) \text{ even } f(-x) = f(x) \\ 0, & \text{when } f(x) \text{ is odd } f(-x) = -f(x) \end{cases}$

→ $\sin\theta = \frac{\text{Opp}}{\text{hyp}}$ $\cos\theta = \frac{\text{adj}}{\text{hyp}}$ $\tan\theta = \frac{\text{Opp}}{\text{adj}}$

$\operatorname{cosec}\theta = \frac{\text{hyp}}{\text{opp}}$ $\sec\theta = \frac{\text{hyp}}{\text{adj}}$ $\cot\theta = \frac{\text{adj}}{\text{opp}}$

→ $\sin\theta \times \operatorname{cosec}\theta = 1$

$\sin\theta = \frac{1}{\operatorname{cosec}\theta}$. $\operatorname{cosec}\theta = \frac{1}{\sin\theta}$

$\cos\theta \times \sec\theta = 1$

$\cos\theta = \frac{1}{\sec\theta}$. $\sec\theta = \frac{1}{\cos\theta}$

$\tan\theta \times \cot\theta = 1$

$\tan\theta = \frac{1}{\cot\theta}$, $\cot\theta = \frac{1}{\tan\theta}$

→ $\sin^2\theta + \cos^2\theta = 1$ $\sec^2\theta - \tan^2\theta = 1$

$\sin^2\theta = 1 - \cos^2\theta$ $\sec^2\theta = 1 + \tan^2\theta$

$\sin\theta = \sqrt{1-\cos^2\theta}$ $\sec\theta = \sqrt{1+\tan^2\theta}$

$\cos^2\theta = 1 - \sin^2\theta$ $\tan^2\theta = \sec^2\theta - 1$

$\cos\theta = \sqrt{1-\sin^2\theta}$ $\tan\theta = \sqrt{\sec^2\theta - 1}$

$\operatorname{cosec}^2\theta - \cot^2\theta = 1$

$\operatorname{cosec}^2\theta = 1 + \cot^2\theta$

$\operatorname{cosec}\theta = \sqrt{1+\cot^2\theta}$

$\cot^2\theta = \operatorname{cosec}^2\theta - 1$

$\cot\theta = \sqrt{\operatorname{cosec}^2\theta - 1}$

→ $\sin 2x = 2\sin x \cos x = \frac{2\tan x}{1+\tan^2 x}$

$\cos 2x = \cos^2 x - \sin^2 x = 2\cos^2 x - 1 = 1 - 2\sin^2 x$

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

$\tan 2x = \frac{2\tan x}{1-\tan^2 x}$

$\sin 3x = 3\sin x - 4\sin^3 x$

$\cos 3x = 4\cos^3 x - 3\cos x$

$\tan 3x = \frac{3\tan x - \tan^3 x}{1 - 3\tan^2 x}$

$1 + \cos 2x = 2\cos^2 x = \frac{1+\cos 2x}{2}$

$1 - \cos 2x = 2\sin^2 x = \frac{1-\cos 2x}{2}$

→ $\sin x = 2\sin\frac{x}{2}\cdot\cos\frac{x}{2} = \frac{2\tan\frac{x}{2}}{1+\tan^2\frac{x}{2}}$

$\cos x = \cos^2\frac{x}{2} - \sin^2\frac{x}{2} = 2\cos^2\frac{x}{2} - 1 = 1 - 2\sin^2\frac{x}{2}$

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

$\tan x = \frac{2\tan\frac{x}{2}}{1-\tan^2\frac{x}{2}}$

$1 + \cos x = 2\cos^2 x/2 \Rightarrow \cos^2\frac{x}{2} = \frac{1+\cos x}{2}$

$1 - \cos x = 2\sin^2 x/2 \Rightarrow \sin^2 x/2 = \frac{1-\cos x}{2}$

→ $\sin(x+y) = \sin x \cos y + \cos x \cdot \sin y$

$\sin(x-y) = \sin x \cos y - \cos x \cdot \sin y$

$\cos(x+y) = \cos x \cdot \cos y - \sin x \sin y$

$\cos(x-y) = \cos x \cdot \cos y + \sin x \sin y$

$\tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$ $\tan(x-y) = \frac{\tan x - \tan y}{1 + \tan x \tan y}$

→ $\sin A \cdot \cos B = \frac{1}{2}[\sin(A+B) + \sin(A-B)]$

$\cos A \cdot \sin B = \frac{1}{2}[\sin(A+B) - \sin(A-B)]$

$\cos A \cdot \cos B = \frac{1}{2}[\cos(A+B) + \cos(A-B)]$

$\sin A \sin B = \frac{1}{2}[\cos(A-B) - \cos(A+B)]$

→ $\sin C + \sin D = 2\sin\left[\frac{C+D}{2}\right]\cos\left[\frac{C-D}{2}\right]$

$\sin C - \sin D = 2\cos\left[\frac{C+D}{2}\right]\sin\left[\frac{C-D}{2}\right]$

$\cos C + \cos D = 2\cos\left[\frac{C+D}{2}\right]\cos\left[\frac{C-D}{2}\right]$

$\cos C - \cos D = -2\sin\left[\frac{C+D}{2}\right]\sin\left[\frac{C-D}{2}\right]$

→ $\frac{\sin\theta}{\cos\theta} = \tan\theta$ $\frac{\cos\theta}{\sin\theta} = \cot\theta$

→ $\frac{d}{dx}\sin^{-1}x = \frac{1}{\sqrt{1-x^2}}$ $\frac{d}{dx}\cos^{-1}x = \frac{-1}{\sqrt{1-x^2}}$

$\frac{d}{dx}\tan^{-1}x = \frac{1}{1+x^2}$ $\frac{d}{dx}\cot^{-1}x = \frac{-1}{1+x^2}$

$\frac{d}{dx}\sec^{-1}x = \frac{1}{x\sqrt{x^2-1}}$ $\frac{d}{dx}\operatorname{cosec}^{-1}x = \frac{-1}{x\sqrt{x^2-1}}$

$\rightarrow \int x^n dx = \frac{x^{n+1}}{n+1} + c$

$\rightarrow \int \frac{1}{x^n} dx = \frac{-1}{(n-1)x^{n-1}} + c$

$\rightarrow \int \frac{1}{x} dx = \log|x| + c$

$\rightarrow \int e^x dx = e^x + c$

$\rightarrow \int a^x dx = \frac{a^x}{\log a} + c$

$\rightarrow \int \sin x dx = -\cos x + c$

$\rightarrow \int \cos x dx = \sin x + c$

$\rightarrow \int \tan dx = \log|\sec x| + c$

$\rightarrow \int \cot x dx = \log|\sin x| + c$

$\rightarrow \int \sec x dx = \log|\sec x + \tan x| + c$

$\rightarrow \int \operatorname{cosec} x dx = \log|\operatorname{cosec} x - \cot x| + c$

$\rightarrow \int \sec^2 x dx = \tan x + c$

$\rightarrow \int \operatorname{cosec}^2 x dx = -\cot x + c$

$\rightarrow \int \sec x \tan x dx = \sec x + c$

$\rightarrow \int \operatorname{cosec} x \cot x dx = -\operatorname{cosec} x + c$

$\rightarrow \int (f(x) \pm g(x)) dx = \int f(x) dx \pm \int g(x) dx$

$\rightarrow \int k f(x) dx = k \int f(x) dx$

$\rightarrow \int k dx = kx + c$

$\rightarrow \sin 2x = 2 \sin x \cos x = \frac{2 \tan x}{1 + \tan^2 x}$

$\rightarrow \cos 2x = \cos^2 x - \sin^2 x = 2\cos^2 x - 1 = 1 - 2\sin^2 x = \frac{1 - \tan^2 x}{1 + \tan^2 x}$

$\rightarrow \tan 2x = \frac{2 \tan x}{1 - \tan^2 x}$

$\rightarrow \sin 3x = 3 \sin x - 4 \sin^3 x$

$\rightarrow \cos 3x = 4 \cos^3 x - 3 \cos x$

$\rightarrow \tan 3x = \frac{3 \tan x - \tan^3 x}{1 - 3 \tan^2 x}$

$\rightarrow 1 + \cos 2x = 2\cos^2 x = \frac{1 + \cos 2x}{2}$ $\rightarrow 1 - \cos 2x = 2\sin^2 x = \frac{1 - \cos 2x}{2}$

$\rightarrow \frac{d}{dx} x^n = n x^{n-1}$

$\rightarrow \frac{d}{dx} x = 1$

$\rightarrow \frac{d}{dx} (\text{constant}) = 0$

$\rightarrow \frac{d}{dx} \frac{1}{x^n} = \frac{-n}{x^{n+1}}$

$\rightarrow \frac{d}{dx} \frac{1}{x} = \frac{-1}{x^2}$

$\rightarrow \frac{d}{dx} k f(x) = k \frac{d}{dx} f(x)$

$\rightarrow \frac{d}{dx} \sin x = \cos x$

$\rightarrow \frac{d}{dx} \cos x = -\sin x$

$\rightarrow \frac{d}{dx} \tan x = \sec^2 x$

$\rightarrow \frac{d}{dx} \cot x = -\operatorname{cosec}^2 x$

$\rightarrow \frac{d}{dx} \sec x = \sec x \tan x$

$\rightarrow \frac{d}{dx} \operatorname{cosec} x = -\operatorname{cosec} x \cot x$

$\rightarrow \frac{d}{dx} e^x = e^x$

$\rightarrow \frac{d}{dx} \log x = \frac{1}{x}$

$\rightarrow \frac{d}{dx} a^x = a^x \log a$

$\rightarrow \frac{d}{dx} \sqrt{x} = \frac{1}{2\sqrt{x}}$

$\rightarrow \frac{d}{dx} uv = uv' + vu'$

$\rightarrow \frac{d}{dx} \left(\frac{u}{v}\right) = \frac{vu' - uv'}{v^2}$

$\rightarrow \sin\theta \times \operatorname{cosec}\theta = 1$

$\rightarrow \cos\theta \times \sec\theta = 1$

$\rightarrow \tan\theta \times \cot\theta = 1$

$\rightarrow \sin^2\theta + \cos^2\theta = 1$

$\rightarrow \sec^2\theta - \tan^2\theta = 1$

$\rightarrow \operatorname{cosec}^2\theta - \cot^2\theta = 1$