Formules trigonométriques

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

$$\sin(\pi-x)=\sin x \qquad \sin(\pi+x)=-\sin x \qquad \sin(-x)=-\sin x$$
$$\cos(\pi-x)=-\cos x \qquad \cos(\pi+x)=-\cos x \qquad \cos(-x)=\cos x$$
$$\tan(\pi-x)=-\tan x \qquad \tan(\pi+x)=\tan x \qquad \tan(-x)=-\tan x$$

$$\sin\left(\frac{\pi}{2}-x\right)=\cos x \qquad \sin\left(\frac{\pi}{2}+x\right)=\cos x$$
$$\cos\left(\frac{\pi}{2}-x\right)=\sin x \qquad \cos\left(\frac{\pi}{2}+x\right)=-\sin x$$
$$\tan\left(\frac{\pi}{2}-x\right)=\text{cotan } x \qquad \tan\left(\frac{\pi}{2}+x\right)=-\text{cotan } x$$

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

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

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

$$\sin 3x=3\sin x-4\sin^3 x \qquad \cos 3x=-3\cos x+4\cos^3 x$$

$$\sin p+\sin q=2\sin\frac{p+q}{2}\cos\frac{p-q}{2}$$
$$\sin p-\sin q=2\sin\frac{p-q}{2}\cos\frac{p+q}{2}$$
$$\tan p+\tan q=\frac{\sin(p+q)}{\cos p\cos q}$$
$$\cos p+\cos q=2\cos\frac{p+q}{2}\cos\frac{p-q}{2}$$
$$\tan p-\tan q=\frac{\sin(p-q)}{\cos p\cos q}$$
$$\cos p-\cos q=-2\sin\frac{p+q}{2}\sin\frac{p-q}{2}$$

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