$$\forall x \in \mathbb{R}-\left\{\frac{\pi}{2}+k\pi \,/\, k \in \mathbb{Z}\right\}$$
$$\tan(-x)=-\tan(x)$$
$$\tan(\pi-x)=-\tan(x)$$
$$\tan(\pi+x)=\tan(x)$$
$$\tan\left(\frac{\pi}{2}-x\right)=\frac{1}{\tan(x)} \quad /x \neq 0\,[2\pi]$$
$$\tan\left(\frac{\pi}{2}+x\right)=-\frac{1}{\tan(x)} \quad /x \neq 0\,[2\pi]$$

$$\forall x \in \mathbb{R}$$
$$Sin(-x)=-Sin(x)$$
$$Sin(\pi-x)=Sin(x)$$
$$Sin(\pi+x)=-Sin(x)$$
$$Sin\left(\frac{\pi}{2}-x\right)=Cos(x)$$
$$Sin\left(\frac{\pi}{2}+x\right)=Cos(x)$$

$$\forall x \in \mathbb{R}$$
$$Cos(-x)=Cos(x)$$
$$Cos(\pi-x)=-Cos(x)$$
$$Cos(\pi+x)=-Cos(x)$$
$$Cos\left(\frac{\pi}{2}-x\right)=Sin(x)$$
$$Cos\left(\frac{\pi}{2}+x\right)=-Sin(x)$$

$$\tan(x)=\frac{Sin(x)}{Cos(x)}$$
$$1+\tan^2(x)=\frac{1}{Cos^2(x)}$$
$$Co\tan(x)=\frac{1}{\tan(x)}$$
$$\sin^2(x)=\frac{\tan^2(x)}{1+\tan^2}$$

$$-1\leq Sin \leq 1$$
$$Sin(x+2k\pi)=Sin(x)$$
$$Sin(x+k\pi)=(-1)^k\,Sin(x)$$
$$Sin\left(n\frac{\pi}{2}\right)=(-1)^n$$

$$-1\leq Cox \leq 1$$
$$Cos(x+2k\pi)=Cosx$$
$$Cos(x+k\pi)=(-1)^k\,Cosx$$
$$Cos(n\pi)=(-1)^n$$

$$Cos^2(x)+Sin^2(x)=1$$

$$\tan(a+b)=\frac{\tan(a)+\tan(b)}{1-\tan(a).\tan(b)}$$
$$\tan(a-b)=\frac{\tan(a)-\tan(b)}{1+\tan(a).\tan(b)}$$

$$Cos(a+b)=Cos(a).Cos(b)-Sin(a).Sin(b)$$
$$Cos(a-b)=Cos(a).Cos(b)+Sin(a).Sin(b)$$
$$Sin(a+b)=Sin(a).Cos(b)+Cos(a).Sin(b)$$
$$Sin(a-b)=Sin(a).Cos(b)-Cos(a).Sin(b)$$

$$\tan(a)+\tan(b)=\frac{Sin(a+b)}{Cos(a).Cos(b)}$$
$$\tan(a)-\tan(b)=\frac{Sin(a-b)}{Cos(a).Cos(b)}$$

$$Cos(a).Cos(b)=\frac{1}{2}\left[Cos(a+b)+Cos(a-b)\right]$$
$$Sin(a).Sin(b)=\frac{1}{2}\left[Cos(a-b)-Cos(a+b)\right]$$
$$Sin(a).Cos(b)=\frac{1}{2}\left[Sin(a+b)+Sin(a-b)\right]$$

$$Cos(2a)=Cos^2(a)-Sin^2(a)$$
$$=2Cos^2(a)-1$$
$$=1-2Sin^2(a)$$
$$Sin(2a)=2Sin(a).Cos(a)$$
$$\tan(2a)=\frac{2\tan(a)}{1-\tan^2(a)}$$

$$Cos(a)+Cos(b)=2Cos\left(\frac{a+b}{2}\right).Cos\left(\frac{a-b}{2}\right)$$
$$Cos(a)-Cos(b)=-2Sin\left(\frac{a+b}{2}\right).Sin\left(\frac{a-b}{2}\right)$$
$$Sin(a)+Sin(b)=2Sin\left(\frac{a+b}{2}\right).Cos\left(\frac{a-b}{2}\right)$$
$$Sin(a)-Sin(b)=2Sin\left(\frac{a-b}{2}\right).Cos\left(\frac{a+b}{2}\right)$$

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إذا وضعنا $t = \tan\left(\frac{x}{2}\right)$

فإن : $Cos(x) = \frac{1-t^2}{1+t^2}$

و $Sin(x) = \frac{2t}{1+t^2}$

و $\tan x = \frac{2t}{1-t^2}$

$1+Cos(a) = 2Cos^2\left(\frac{a}{2}\right)$

$1-Cos(a) = 2Sin^2\left(\frac{a}{2}\right)$

$Sin(a) = 2Sin\left(\frac{a}{2}\right).Cos\left(\frac{a}{2}\right)$

$Cos^2(a) = \frac{1+Cos(2a)}{2}$

$Sin^2(a) = \frac{1-Cos(2a)}{2}$

$\tan^2(a) = \frac{1-Cos(2a)}{1+Cos(2a)}$

$Cos(x) = Cos(\alpha) \Leftrightarrow \begin{cases} x = \alpha + 2k\pi \\ \text{أو} \\ x = -\alpha + 2k\pi \end{cases} / k \in \mathbb{Z}$

$Sin(x) = Sin(\alpha) \Leftrightarrow \begin{cases} x = \alpha + 2k\pi \\ \text{أو} \\ x = \pi - \alpha + 2k\pi \end{cases} / k \in \mathbb{Z}$

$aCos(x) + bSin(x) = \sqrt{a^2+b^2}Cos(x-\alpha)$

حيث : و $\begin{cases} Cos(\alpha) = \frac{a}{\sqrt{a^2+b^2}} \\ Sin(\alpha) = \frac{b}{\sqrt{a^2+b^2}} \end{cases}$

$aCos(x) + bSin(x) = \sqrt{a^2+b^2}Sin(x+\alpha)$

حيث : و $\begin{cases} Sin(\alpha) = \frac{a}{\sqrt{a^2+b^2}} \\ Cos(\alpha) = \frac{b}{\sqrt{a^2+b^2}} \end{cases}$

$\tan(x) = \tan(\alpha) \Leftrightarrow x = \alpha + k\pi / k \in \mathbb{Z}$

x	π	$\frac{5\pi}{6}$	$\frac{3\pi}{4}$	$\frac{2\pi}{3}$	$\frac{\pi}{2}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{\pi}{6}$	**0**
$Sin(x)$	**0**	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	**1**	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	**0**
$Cos(x)$	**-1**	$-\frac{\sqrt{3}}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{1}{2}$	**0**	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	**1**
$\tan(x)$	**0**	$-\frac{\sqrt{3}}{3}$	**-1**	$-\sqrt{3}$	**غير معروف**	$\sqrt{3}$	**1**	$\frac{\sqrt{3}}{3}$	**0**