

$$\begin{aligned}\sin(x+y) &= \sin x \cos y + \sin y \cos x \\ \sin(x-y) &= \sin x \cos y - \sin y \cos x \\ \cos(x+y) &= \cos x \cos y - \sin y \sin x \\ \cos(x-y) &= \cos x \cos y + \sin y \sin x \\ \sin^2 x + \cos^2 x &= 1\end{aligned}$$

Формулы двойных углов  
 $\sin 2x = \sin(x+x) = 2(\sin x \cos x)$   
 $\cos 2x = \cos(x+x) = \cos^2(x) - \sin^2(x)$

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

Формулы понижения степени  
 $\cos 2x = 1 - 2\sin^2(x)$   
 $\cos 2x = 2\cos^2(x) - 1$

$\sin^2 x = (1 - \cos 2x)/2$   
 $\cos^2 x = (\cos 2x + 1)/2$

Формулы тройных углов

$$\begin{aligned}\sin 3x &= \sin(x+2x) = \sin x \cos 2x + \sin 2x \cos x = \sin x (1 - 2\sin^2(x)) + 2(\sin x \cos x) \cos x = \sin x - 2\sin^3(x) + 2\sin x \cos^2(x) = \sin x - 2\sin^3(x) + 2\sin x (1 - \sin^2(x)) = \sin x - 2\sin^3(x) + 2\sin x - 2\sin^3(x) = 3\sin x - 4\sin^3(x) \\ \sin^3 x &= (3\sin x - \sin 3x)/4\end{aligned}$$

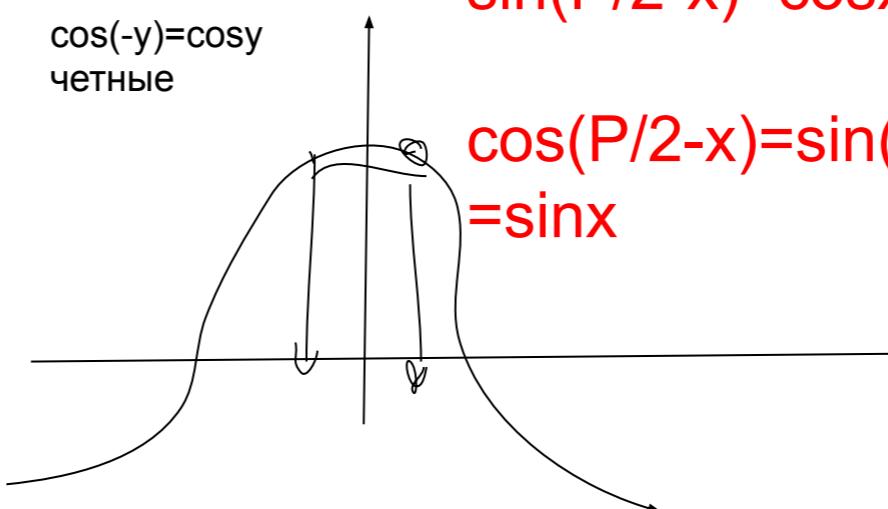
$$\begin{aligned}\cos 3x &= \cos(x+2x) = \cos x \cos 2x - \sin x \sin 2x = \cos x (2\cos^2(x) - 1) - 2(\sin x \cos x) \sin x = 2\cos^3(x) - \cos x - 2\sin^2 x \cos x = 2\cos^3(x) - \cos x - 2(1 - \cos^2 x) \cos x = 2\cos^3(x) - \cos x - 2\cos x + 2\cos^3 x = 4\cos^3 x - 3\cos x \\ \cos^3 x &= (\cos 3x + 3\cos x)/4\end{aligned}$$

$$\begin{aligned}5 * \cos(29) / \sin(61) &= 5 * \cos(90 - 61) / \sin(61) = 5 * (\cos 90 * \cos 61 + \sin 90 * \sin 61) / \sin(61) = \\ &= 5 * \sin(61) / \sin(61) = 5\end{aligned}$$

$$\begin{aligned}\sin(x-y) &= \sin x \cos(-y) + \sin(-y) \cos x = \\ &= \sin x \cos y - \sin y \cos x\end{aligned}$$

$$\sin(P/2 - x) = \sin(P/2) * \cos x - \cos(P/2) * \sin x = \cos x$$

$$\begin{aligned}\cos(x+y) &= \sin((P/2-x) - y) = \sin(P/2-x) * \cos y - \\ &- \cos(P/2-x) * \sin y = \cos x \cos y - \sin x \sin y\end{aligned}$$



$$\begin{aligned}\sin(P/2 - x) &= \cos x \\ \cos(P/2 - x) &= \sin(P/2 - (P/2 - x)) = \\ &= \sin x\end{aligned}$$

