MO 13:

GONIOMETRIA

x	0°	30°	45°	60°	90°
sin x	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cos x	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tg x	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	*
cotg x	*	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0

	I. kvadrant	II. kvadrant	III. kvadrant	IV. kvadrant
sin x	+	+	-	-
cos x	+	-	-	+
tg x	+	-	+	-
cotg x	+	-	+	-

$\text{tg } x = \frac{\sin x}{\cos x}$ $\cos x \neq 0;\ x \neq (2k+1)\frac{\pi}{2}$ $\text{cotg } x = \frac{\cos x}{\sin x}$ $\sin x \neq 0;\ x \neq k\pi$

$\sin(-x) = -\sin x$ $\text{tg}(-x) = -\text{tg } x$

$\cos(-x) = \cos x$ $\text{cotg}(-x) = -\text{cotg } x$

$\sin^2 x + \cos^2 x = 1$ (pyt.veta) $\text{tg } x.\text{cotg } x = 1$ $\frac{a}{b}.\frac{b}{a} = 1$

$\sin 2x = \sin(x+x) = \sin x.\cos x + \sin x.\cos x = 2.\sin x.\cos x$ $\text{tg } 2x = \frac{2.tg\ x}{1 - \text{tg}^2 x}$

$\cos 2x = \cos(x+x) = \cos x.\cos x - \sin x.\sin x = \cos^2 x - \sin^2 x$ $\text{cotg } 2x = \frac{\text{cotg}^2 x - 1}{2.\text{cotg } x}$

$\sin(x+y) = \sin x.\cos y + \cos x.\sin y$ $\text{tg}(x+y) = \frac{\text{tg } x + \text{tg } y}{1 - \text{tg } x.\text{tg } y}$

$\sin(x-y) = \sin x.\cos y - \cos x.\sin y$ $\text{tg}(x-y) = \frac{\text{tg } x - \text{tg } y}{1 + \text{tg } x.\text{tg } y}$

$\cos(x+y) = \cos x.\cos y - \sin x.\sin y$ $\text{cotg}(x+y) = \frac{\text{cotg } x.\text{cotg } y - 1}{\text{cotg } y + \text{cotg } x}$

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

$\operatorname{cotg}(x+y) = \dfrac{\operatorname{cotg} x.\operatorname{cotg} y + 1}{\operatorname{cotg} y - \operatorname{cotg} x}$

$\sin x + \sin y = 2.\sin\dfrac{x+y}{2}.\cos\dfrac{x-y}{2}$

$\cos x + \cos y = 2.\cos\dfrac{x+y}{2}.\cos\dfrac{x-y}{2}$

$\sin x - \sin y = 2.\cos\dfrac{x+y}{2}.\sin\dfrac{x-y}{2}$

$\cos x - \cos y = -2.\sin\dfrac{x+y}{2}.\sin\dfrac{x-y}{2}$

$\sin x.\cos y = \dfrac{\sin(x-y)+\sin(x+y)}{2}$

$\sin x.\sin x = \dfrac{\cos(x-y)-\cos(x+y)}{2}$

$\cos x.\cos y = \dfrac{\cos(x-y)+\cos(x+y)}{2}$

$\left|\sin\dfrac{x}{2}\right| = \sqrt{\dfrac{1-\cos x}{2}}$

$\left|\cos\dfrac{x}{2}\right| = \sqrt{\dfrac{1+\cos x}{2}}$

$\left|\operatorname{tg}\dfrac{x}{2}\right| = \sqrt{\dfrac{1-\cos x}{1+\cos x}}$

$\left|\operatorname{cotg}\dfrac{x}{2}\right| = \sqrt{\dfrac{1+\cos x}{1-\cos x}}$

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

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

sínusová veta: $\dfrac{a}{\sin\alpha} = \dfrac{b}{\sin\beta} = \dfrac{c}{\sin\gamma}$

kosínusová veta: $c^2 = a^2 + b^2 - 2ab.\cos\gamma$

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

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

$\sin x = \dfrac{\operatorname{tg} x}{\sqrt{1+\operatorname{tg}^2 x}}$

$\cos x = \dfrac{1}{\sqrt{1+\operatorname{tg}^2 x}}$

$\operatorname{tg} x = \dfrac{\sqrt{1-\cos^2 x}}{\cos x}$

$\operatorname{tg} x = \dfrac{\sin x}{\sqrt{1-\sin^2 x}}$