

Тригонометрія

	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{7\pi}{6}$	$\frac{5\pi}{4}$	$\frac{4\pi}{3}$	$\frac{3\pi}{2}$	$\frac{5\pi}{3}$	$\frac{7\pi}{4}$	$\frac{11\pi}{6}$	2π
	0	30°	45°	60°	90°	120°	135°	150°	180°	210°	225°	240°	270°	300°	315°	330°	360°
sinx	0	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	1	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0	-1/2	$-\sqrt{2}/2$	$-\sqrt{3}/2$	-1	$-\sqrt{3}/2$	$-\sqrt{2}/2$	-1/2	0
cosx	1	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0	-1/2	$-\sqrt{2}/2$	$-\sqrt{3}/2$	-1	$-\sqrt{3}/2$	$-\sqrt{2}/2$	-1/2	0	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	1
tg x	0	1/√3	1	√3		-√3	-1	-1/√3	0	1/√3	1	√3		-√3	-1	-1/√3	0
ctg x		√3	1	1/√3	0	-1/√3	-1	-√3		√3	1	1/√3	0	-1/√3	-1	-√3	

$$1. \sin^2 x + \cos^2 x = 1$$

$$2. \operatorname{tg} x \cdot \operatorname{ctg} x = 1$$

$$3. 1 + \operatorname{tg}^2 x = \frac{1}{\cos^2 x}$$

$$4. 1 + \operatorname{ctg}^2 x = \frac{1}{\sin^2 x}$$

$$5. \operatorname{tg} x + \operatorname{ctg} x = \frac{1}{\sin x \cdot \cos x} \quad 10. \operatorname{tg} 2x = \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$15. \sin(x \pm y) = \sin x \cdot \cos y \pm \cos x \cdot \sin y$$

$$16. \cos(x + y) = \cos x \cdot \cos y - \sin x \cdot \sin y$$

$$17. \cos(x - y) = \cos x \cdot \cos y + \sin x \cdot \sin y$$

$$18. \operatorname{tg}(x \pm y) = \frac{\operatorname{tg} x \pm \operatorname{tg} y}{1 \mp \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$6. \sin 2x = 2 \sin x \cdot \cos x$$

$$7. \cos 2x = \cos^2 x - \sin^2 x$$

$$8. \cos 2x = 2 \cos^2 x - 1$$

$$9. \cos 2x = 1 - \sin^2 x$$

$$11. \cos^2 x = \frac{1 + \cos 2x}{2}$$

$$12. \sin^2 x = \frac{1 - \cos 2x}{2}$$

$$13. \cos^3 x = \frac{3 \cos x + \cos 3x}{4}$$

$$14. \sin^3 x = \frac{3 \sin x - \sin 3x}{4}$$

$$19. \sin x \cdot \sin y = \frac{1}{2} (\cos(x - y) - \cos(x + y))$$

$$20. \cos x \cdot \cos y = \frac{1}{2} (\cos(x - y) + \cos(x + y))$$

$$21. \sin x \cdot \cos y = \frac{1}{2} (\sin(x - y) + \sin(x + y))$$

$$22. \sin x \pm \sin y = 2 \sin \frac{x \pm y}{2} \cos \frac{x \mp y}{2}$$

$$23. \cos x + \cos y = 2 \cos \frac{x + y}{2} \cos \frac{x - y}{2}$$

$$24. \cos x - \cos y = -2 \sin \frac{x + y}{2} \sin \frac{x - y}{2}$$

$$25. \operatorname{tg} x \pm \operatorname{tg} y = \frac{\sin(x \pm y)}{\cos x \cdot \cos y}$$

$$29. \sin 3x = 3 \sin x - 4 \sin^3 x$$

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

$$31.$$

$$1. \sin x = 0, \quad x = \pi n.$$

$$2. \sin x = 1, \quad x = \frac{\pi}{2} + 2\pi n.$$

$$3. \sin x = -1, \quad x = -\frac{\pi}{2} + 2\pi n.$$

$$4. \sin x = a, \quad x = (-1)^n \arcsin a + \pi n$$

$$30. \cos 3x = 4 \cos^3 x - 3 \cos x$$

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

$$32.$$

$$1. \cos x = 0, \quad x = \frac{\pi}{2} + \pi n.$$

$$2. \cos x = 1, \quad x = 2\pi n.$$

$$3. \cos x = -1, \quad x = \pi + 2\pi n.$$

$$4. \cos x = a, \quad x = \pm \arccos a + 2\pi n$$

$$26. \sin \frac{x}{2} = \pm \sqrt{\frac{1 - \cos x}{2}}$$

$$27. \cos \frac{x}{2} = \pm \sqrt{\frac{1 + \cos x}{2}}$$

$$28. \operatorname{tg} \frac{x}{2} = \pm \sqrt{\frac{1 - \cos x}{1 + \cos x}}$$