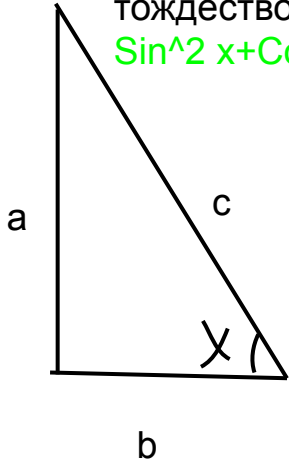


Основное
тригонометрическое
тождество

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



6 БАЗОВЫХ ФОРМУЛ

$$\sin x = a/c$$

$$\cos x = b/c$$

$$\sin^2 x + \cos^2 x = ?$$

ПО Т ПИФАГОРА

$$\sin^2 x + \cos^2 x = (a/c)^2 + (b/c)^2 = a^2/c^2 + b^2/c^2 = (a^2 + b^2)/c^2 = c^2/c^2 = 1$$

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

$$\sin x / \cos x = a/c * c/b = a/b = \operatorname{tg} x$$

$$\cos x / \sin x = b/c * c/a = b/a = \operatorname{ctg} x$$

$$\sin x / \cos x = \operatorname{tg} x$$

$$\cos x / \sin x = \operatorname{ctg} x$$

$$\operatorname{tg} x * \operatorname{ctg} x = \sin x / \cos x * \cos x / \sin x = 1$$

$$\operatorname{tg} x * \operatorname{ctg} x = 1$$

$$1 + \operatorname{tg}^2 x = 1 + (\sin x / \cos x)^2 = 1 + (\sin^2 x / \cos^2 x) = \cos^2 x / \cos^2 x + \sin^2 x / \cos^2 x =$$

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

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

$$1 + \operatorname{ctg}^2 x = 1 / \sin^2 x$$

$$1 + \operatorname{ctg}^2 x = 1 + (\cos x / \sin x)^2 = 1 + (\cos^2 x / \sin^2 x) = \sin^2 x / \sin^2 x + \cos^2 x / \sin^2 x = (\sin^2 x + \cos^2 x) / \sin^2 x = 1 / \sin^2 x$$