$$tg\,x + \sin(\pi + x) = 2\sin^2\frac{x}{2}\,;\quad tg\,x - \sin x = 2\,\frac{1-\cos x}{2}\,;$$

$$tg\,x = 1 - \cos x + \sin x\,;\quad \cos x - \sin x = tg\,\frac{\pi}{4} - tg\,x\,;$$

$$\sqrt{2}\sin\left(\frac{\pi}{4} - x\right) = \frac{\sin\left(\frac{\pi}{4} - x\right)}{\cos\frac{\pi}{4}\cos x}\,;\quad \sqrt{2}\,\frac{\sqrt{2}}{2}\cos x = \frac{\sin\left(\frac{\pi}{4} - x\right)}{\sin\left(\frac{\pi}{4} - x\right)}\,;$$

$$\frac{2}{2}\cos x = 1\,;\quad \cos x = 1\,;\quad x = 2\pi k \quad k \in Z$$