ABREVIAÇÕES:

$C = \cos \theta$

$S = \text{sen } \theta$

$t = \tan \theta = \dfrac{\text{sen } \theta}{\cos \theta} = \dfrac{S}{C}$

$z = \sec \theta = \dfrac{1}{\cos \theta} = \dfrac{1}{C}$

$$\boxed{C^2 + S^2 = 1}$$

$$z^2 = \frac{1}{C^2} = \frac{C^2 + S^2}{C^2} = \frac{C^2}{C^2} + \frac{S^2}{C^2} = 1 + t^2$$

$$\boxed{z^2 = 1 + t^2}$$

$$\Large\looparrowright \boxed{t^2 = z^2 - 1}$$

$$S^2 = 1 - C^2 \quad \Rightarrow \quad S = \sqrt{1 - C^2}$$

$$C^2 = 1 - S^2 \quad \Rightarrow \quad C = \sqrt{1 - S^2}$$

$$z^2 = 1 + t^2 \quad \Rightarrow \quad z = \sqrt{1 + t^2}$$

$$t^2 = z^2 - 1 \quad \Rightarrow \quad t = \sqrt{z^2 - 1}$$