$$\frac{\tan^2\theta}{1+\tan^2\theta} = \frac{\frac{\sin\theta}{\cos^2\theta}\cdot\cos^2\theta}{\left(1+\frac{\sin^2\theta}{\cos^2\theta}\right)\cdot\cos^2\theta} = \frac{\sin^2\theta}{\cos^2\theta+\sin^2\theta} = \sin^2\theta.$$

$$\tan^2\theta = \frac{\sin^2\theta}{\cos^2\theta} = \frac{1-\cos^2\theta}{\cos^2\theta}$$

$$\Rightarrow \quad \cos^2\theta = \frac{1}{1+\tan^2\theta}$$

$$\Rightarrow \quad \cos\theta = \begin{cases} \dfrac{1}{\sqrt{1+\tan^2\theta}} \\ \dfrac{-1}{\sqrt{1+\tan^2\theta}} \end{cases}$$

$$-\frac{\pi}{2}+2k\pi \le \theta \le \frac{\pi}{2}+2k\pi \qquad k\in\mathbb{Z}.$$

$$\frac{\pi}{2}+2k\pi < \theta < \frac{3\pi}{2}+2k\pi \qquad k\in\mathbb{Z}$$