Proof : The period of Trigonometric functions in complex world is $2\pi$

$$\theta=\frac{ln\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}=\frac{ln\left|i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right|+i\,Arg\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}$$

$$=\frac{ln\left|i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right|+i\,arg\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)+2k\pi i}{i}(k\in\mathbb{Z})$$

$$=\frac{ln\left|i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right|+i\,arg\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}+2k\pi$$

$$\theta=\frac{ln\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}=\frac{ln\left|cos\,\theta\pm\sqrt{cos^2\theta-1}\right|+i\,Arg\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}$$

$$=\frac{ln\left|cos\,\theta\pm\sqrt{cos^2\theta-1}\right|+i\,arg\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)+2k\pi i}{i}(k\in\mathbb{Z})$$

$$=\frac{ln\left|cos\,\theta\pm\sqrt{cos^2\theta-1}\right|+i\,arg\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}+2k\pi$$

$$\theta=\frac{ln\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}=\frac{ln\left|\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right|+i\,Arg\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}$$

$$=\frac{ln\left|\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right|+i\,arg\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)+2k\pi i}{i}(k\in\mathbb{Z})$$

$$=\frac{ln\left|\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right|+i\,arg\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}+2k\pi$$

Find the relationship between the plus minus sign and Trigonometric Identities

$$\pi-\theta=\pi-\frac{ln\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}=\frac{\pi i-ln\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}$$

$$=\frac{ln(-1)-ln\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)}{i}=\frac{ln\left(\frac{-1}{i\,sin\,\theta\pm\sqrt{1-sin^2\theta}}\right)}{i}$$

$$=\frac{ln\left(\frac{-\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}{\left(i\,sin\,\theta\pm\sqrt{1-sin^2\theta}\right)\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}\right)}{i}$$

$$=\frac{ln\left(\frac{-\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}{(i\,sin\,\theta)^2-\left(\sqrt{1-sin^2\theta}\right)^2}\right)}{i}=\frac{ln\left(\frac{-\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}{-sin^2\theta-(1-sin^2\theta)}\right)}{i}$$

$$=\frac{ln\left(\frac{-\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}{-1}\right)}{i}=\frac{ln\left(i\,sin\,\theta\mp\sqrt{1-sin^2\theta}\right)}{i}$$

$$2\pi-\theta=2\pi-\frac{ln\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}=\frac{2\pi i-ln\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}$$

$$=\frac{ln(1)-ln\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)}{i}=\frac{ln\left(\frac{1}{cos\,\theta\pm\sqrt{cos^2\theta-1}}\right)}{i}$$

$$=\frac{ln\left(\frac{cos\,\theta\mp\sqrt{cos^2\theta-1}}{\left(cos\,\theta\pm\sqrt{cos^2\theta-1}\right)\left(cos\,\theta\mp\sqrt{cos^2\theta-1}\right)}\right)}{i}$$

$$=\frac{ln\left(\frac{cos\,\theta\mp\sqrt{cos^2\theta-1}}{(cos\,\theta)^2-\left(\sqrt{cos^2\theta-1}\right)^2}\right)}{i}=\frac{ln\left(\frac{cos\,\theta\mp\sqrt{cos^2\theta-1}}{cos^2\theta-(cos^2\theta-1)}\right)}{i}$$

$$=\frac{ln\left(\frac{cos\,\theta\mp\sqrt{cos^2\theta-1}}{1}\right)}{i}=\frac{ln\left(cos\,\theta\mp\sqrt{cos^2\theta-1}\right)}{i}$$

$$\pi+\theta=\pi+\frac{ln\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}=\frac{\pi i+ln\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}$$

$$=\frac{ln(-1)+ln\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}=\frac{ln\left((-1)\left(\frac{\pm i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)\right)}{i}=\frac{ln\left(\frac{\mp i\sqrt{tan^2\theta+1}}{tan\,\theta+1}\right)}{i}$$