

$$\begin{aligned}
& \frac{\cos t}{\cos t + \sin t - 1} - \frac{\sin t}{\cos t + \sin t - 1} + \frac{1}{\cos t + \sin t - 1} = \\
& = \frac{\cos t - \sin t + 1}{\cos t + \sin t - 1} = \frac{\cos t - \sin t + 1}{\cos t + \sin t - 1} \cdot \frac{\cos t + \sin t + 1}{\cos t + \sin t + 1} = \\
& = \frac{(\cos t + 1)^2 - \sin^2 t}{(\cos t + \sin t)^2 - 1} = \frac{\cos^2 t + (1 - \sin^2 t) + 2\cos t}{\sin 2t} = \\
& = \frac{2\cos t + 2\cos^2 t}{2\sin t \cos t} = \frac{1}{\sin t} + \frac{\cos t}{\sin t} = \csc t + \cot t
\end{aligned}$$

If $\cos t + \sin t + 1 = 0$ then $\sqrt{2} \sin\left(t + \frac{\pi}{4}\right) = -1 \Rightarrow t = 5\pi/4$ or $t = -\pi/2$

$$\frac{\cos t - \sin t + 1}{\cos t + \sin t - 1} = \frac{-2\sin t}{-2} = \sin t = [t = -\pi/2] = -1$$

$$\csc t + \cot t = \frac{1}{\sin t} + \frac{\cos t}{\sin t} = \frac{1 + \cos t}{\sin t} = -1$$