NAJ BO $\vec{f}(t) = \left(\cos^2\frac{t}{2}, \frac{1}{\sqrt{2}}\sin t, \sin^2\frac{t}{2}\right)$, $t \in [0, 2\pi]$

IN $K = \vec{f}([0, 2\pi])$.

(a) POIŠČI TOČKE V KATERIH $\vec{f}(t)$ NI REGULARNA

(b) POKAŽI, DA K LEŽI NA SFERI $x^2+y^2+z^2=1$ IN RAVNINI $x+z=1$.

(a) $\dot{\vec{f}}(t) = \left(-2\cos\frac{t}{2}\sin\frac{t}{2}\cdot\left(\frac{1}{2}\right), \frac{1}{\sqrt{2}}\cos t, 2\sin\frac{t}{2}\cos\frac{t}{2}\left(\frac{1}{2}\right)\right)$

$= \left(-\frac{1}{2}\sin t, \frac{1}{\sqrt{2}}\cos t, \frac{1}{2}\sin t\right)$

$\|\dot{\vec{f}}(t)\|^2 = \frac{1}{4}\sin^2 t + \frac{1}{2}\cos^2 t + \frac{1}{4}\sin^2 t = \frac{1}{2}(\sin^2 t + \cos^2 t) = \frac{1}{2}$

KRIVULJA K JE POVSOD REGULARNA

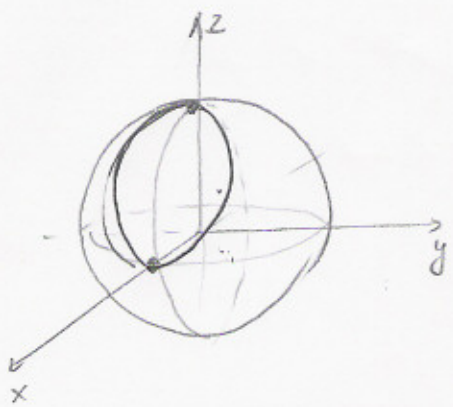
(b) $x^2+y^2+z^2 = \cos^4\frac{t}{2} + \frac{1}{2}\sin^2 t + \sin^4\frac{t}{2}$

$= \cos^4\frac{t}{2} + \frac{1}{2}\cdot\left(2\sin\frac{t}{2}\cos\frac{t}{2}\right)^2 + \sin^4\frac{t}{2}$

$= \cos^4\frac{t}{2} + 2\sin^2\frac{t}{2}\cos^2\frac{t}{2} + \sin^4\frac{t}{2}$

$= \left(\cos^2\frac{t}{2} + \sin^2\frac{t}{2}\right)^2 = 1$

$x+z = \cos^2\frac{t}{2} + \sin^2\frac{t}{2} = 1$



KER JE K PRESEK SFERE Z RAVNINO, JE KROŽNICA.