DN

Naj bo $\vec{p}(t) = (\cos t, \sin t, t)$. Parametriziraj jo z naravnim parametrom in poišči enačbo pritisnjene krožnice v točki $T(1,0,0)$?

$$s = \int_0^t \|\dot{\vec{p}}(\tau)\| \, d\tau = \int_0^t \sqrt{2} \, d\tau = \sqrt{2}\, t \Longrightarrow t = \frac{s}{\sqrt{2}}$$

$$\dot{\vec{p}}(t) = (-\sin t, \cos t, 1)$$

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

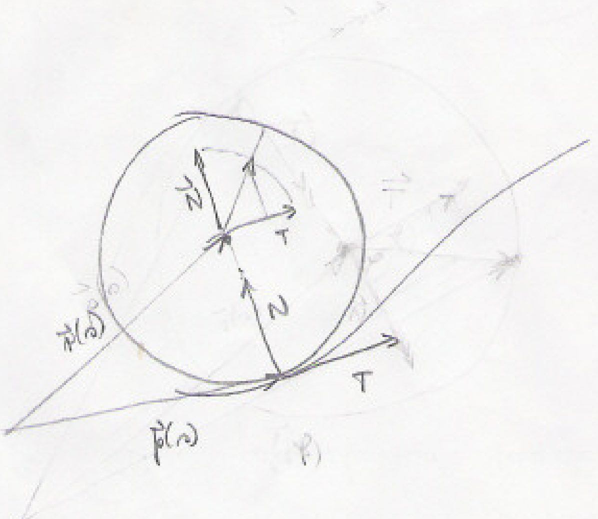
$$\vec{p}(s) = \left(\cos \frac{s}{\sqrt{2}}, \sin \frac{s}{\sqrt{2}}, \frac{s}{\sqrt{2}}\right)$$

$$\vec{p}'(s) = \left(-\frac{1}{\sqrt{2}} \sin \frac{s}{\sqrt{2}}, \frac{1}{\sqrt{2}} \cos \frac{s}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right) = \frac{1}{\sqrt{2}}\left(-\sin \frac{s}{\sqrt{2}}, \cos \frac{s}{\sqrt{2}}, 1\right)$$

$$\vec{p}''(s) = \frac{1}{\sqrt{2}}\left(-\frac{1}{\sqrt{2}} \cos \frac{s}{\sqrt{2}}, -\frac{1}{\sqrt{2}} \sin \frac{s}{\sqrt{2}}, 0\right) = -\frac{1}{2}\left(\cos \frac{s}{\sqrt{2}}, \sin \frac{s}{\sqrt{2}}, 0\right)$$

$$\kappa(s) = \|\vec{p}''(s)\| = \frac{1}{2}\left(\cos^2 \frac{s}{\sqrt{2}} + \sin^2 \frac{s}{\sqrt{2}}\right) = \frac{1}{2} \Longrightarrow \rho(s) = 2$$

$$\vec{N}(s) = \left(-\cos \frac{s}{\sqrt{2}}, -\sin \frac{s}{\sqrt{2}}, 0\right)$$



$$\vec{r}(s) = \vec{p}(s) + \rho(s)\vec{N}(s)$$

$$\vec{j}(\varphi) = \vec{r}(s) + \rho(s)\vec{T}(s)\cos\varphi + \rho(s)\vec{N}(s)\sin\varphi$$

$$\varphi \in [0, 2\pi]$$

$$\vec{j}(\varphi) = \vec{p}(s) + \rho(s)\vec{N}(s) + \rho(s)\vec{T}(s)\cos\varphi$$
$$+ \rho(s)\vec{N}(s)\sin\varphi$$

v točki $T(1,0,0) \Rightarrow s=0$

$\kappa(s) = \frac{1}{2}$

$\rho(s) = 2$

$\vec{T}(0) = \frac{1}{\sqrt{2}}(0,1,1)$

$\vec{N}(0) = (-1,0,0)$

$$\vec{f}(\varphi) = (1,0,0) + 2(-1,0,0) + 2\cdot\frac{1}{\sqrt{2}}(0,1,1)\cos\varphi + 2(-1,0,0)\sin\varphi$$
$$= (-1,0,0) + (0, \sqrt{2}\cos\varphi, \sqrt{2}\cos\varphi) + (-2\sin\varphi, 0, 0)$$
$$= \underline{\underline{(-1-2\sin\varphi, \sqrt{2}\cos\varphi, \sqrt{2}\cos\varphi)}}$$

$\varphi \in [0, 2\pi]$