4.2

ROTACE $\frac{1}{\sqrt{10}}\begin{pmatrix}1 & -3\\ 3 & 1\end{pmatrix}$ PŘEVÁDÍ $\begin{pmatrix}1\\0\end{pmatrix}$ na $\frac{1}{\sqrt{10}}\begin{pmatrix}1\\3\end{pmatrix}$

SHODNOST :

$$\begin{pmatrix}x\\y\end{pmatrix} \longmapsto \frac{1}{\sqrt{10}}\begin{pmatrix}1 & 3\\ -3 & 1\end{pmatrix}\left(\begin{pmatrix}x\\y\end{pmatrix}-\begin{pmatrix}1\\1\end{pmatrix}\right)$$

$$c(t)=\begin{pmatrix}t\\t^3\end{pmatrix} \qquad d(t)=\frac{1}{\sqrt{10}}\begin{pmatrix}1 & 3\\ -3 & 1\end{pmatrix}\left(\begin{pmatrix}t\\t^3\end{pmatrix}-\begin{pmatrix}1\\1\end{pmatrix}\right)$$

$$d(1)=\begin{pmatrix}0\\0\end{pmatrix}$$

$$d'(t)=\frac{1}{\sqrt{10}}\begin{pmatrix}1 & 3\\ -3 & 1\end{pmatrix}\begin{pmatrix}1\\3t^2\end{pmatrix} \qquad d'(1)=\begin{pmatrix}\sqrt{10}\\0\end{pmatrix}$$

$$d''(t)=\frac{1}{\sqrt{10}}\begin{pmatrix}1 & 3\\ -3 & 1\end{pmatrix}\begin{pmatrix}0\\6t\end{pmatrix}=\frac{6t}{\sqrt{10}}\begin{pmatrix}3\\1\end{pmatrix} \qquad d''(1)=\frac{6}{\sqrt{10}}\begin{pmatrix}3\\1\end{pmatrix}$$

$$\varkappa_2(1)=\frac{\sqrt{10}\,\frac{6}{\sqrt{10}}\begin{vmatrix}1 & 3\\ 0 & 1\end{vmatrix}}{\left\|\begin{pmatrix}\sqrt{10}\\0\end{pmatrix}\right\|^3}=\frac{6}{10\sqrt{10}}=\frac{3}{5\sqrt{10}}$$