```
\documentclass{article}
\usepackage{czech}
\usepackage[cp1250]{inputenc}

%%%%%%% Balíček amsmath pro využití příkazu \eqref %%%%%%%%%%%
\usepackage{amsmath}
%%%%%%% Balíček graphicx pro vkládání obrázků %%%%%%%%%%%%%%%%
\usepackage{graphicx}
%%%%%%% Balíček hyperref pro použití hypertextových odkazů %%%%
\usepackage{hyperref}


%%%%%%%%%%%%%%%%% Definice prostředí Příklad %%%%%%%%%%%%%%%%%%
\newtheorem{example}{Příklad}

%%%%%%%%%%%%%%%%% Umístění textu na stránku (výška, šířka, okraje)
\textheight 24cm \textwidth 18cm \hoffset -2.5cm \voffset -2cm

%%%%%%%%%%%%%%%%% Potlačení číslování stránek %%%%%%%%%%%%%%%%%
\pagestyle{empty}

%%%%%%%%%%%%%%%%% Tělo dokumentu %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{document}
\centerline{\bf\Large Strofoida}
\bigskip
%\vspace{5cm}

\noindent Uvažujme svazek kružnic jejichž společnou tečnou je osa
$x$ a společným bodem dotyku je počátek. Zvolíme-li na ose $x$ bod
$A = [a, 0]$ a vedeme-li jím průměry ke všem kružnicím svazku,
potom krajní body těchto průměrů jsou body křivky, kterou nazýváme
{\it strofoida} \cite{Au}.


%%%%%%%%%%%%%%%%% Prostředí Příklad %%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{example}
Odvoďte rovnici uvedené strofoidy v polárních souřadnicích, potom
křivku zobrazte.
\end{example}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


\noindent{\it Řešení}: Uvažujme jednu kružnici ze svazku zmíněného
ve výše uvedené definici strofoidy (viz Obr. \ref{fig:Strofoida}).


%%%%%%%%%%%%%%%%% Obrázek %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{figure}[h]
\begin{center}
\includegraphics[width=6cm]{strofoida.eps}
\caption{Strofoida jako množina bodů}\label{fig:Strofoida}
\end{center}
\end{figure}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


\noindent Z obrázku \ref{fig:Strofoida} je zřejmá platnost těchto
dvou vztahů:


%%%%%%%%%%%%%%%%% Soustava (číslovaných) rovností %%%%%%%%%%%%%%%
\begin{eqnarray}
```

```
\cos{\varphi}&=&\displaystyle\frac{|OC_{2}|}{r},\\
\displaystyle\frac{|OC_{2}|}{k}&=&\displaystyle\frac{a}{\sqrt{a^2+k^2}},
\end{eqnarray}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%


\noindent kde $r=|OB_{2}|$, $k=|SO|$ a $A=[0,a]$. Jejich
zjednodušením pak dostaneme rovnost


%%%%%%%%%%%%%%%%% (Číslovaná) rovnice %%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{equation}
r\cos{\varphi}=a\displaystyle\frac{k}{\sqrt{a^2+k^2}}.
\label{eq:3}
\end{equation}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\noindent Při bližším průzkumu obrázku \ref{fig:Strofoida} dále
zjistíme, že $|\angle{OSB_{2}}| = 2\varphi$. Potom ale můžeme
psát, že $\displaystyle\frac{k}{\sqrt{a^2+k^2}}=\cos{2\varphi}.$
Rovnost \eqref{eq:3} tak lze vyjádřit ve tvaru


%%%%%%%%%%%%%%%%% (Číslovaná) rovnice %%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{equation}
r=\displaystyle\frac{\cos{(2\varphi)}}{\cos{\varphi}},
\label{eq:strofp}
\end{equation}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%%%%% Text s hypertextovými odkazy %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%% POZOR! Hypertextové odkazy fungují až po převedení textu do formátu PDF %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\noindent což je hledaná rovnice strofoidy v polárních
souřadnicích $(r,\varphi)$. Více informací o námi uvažované
strofoidě najde zájemce například na stránce
\href{http://www.2dcurves.com/cubic/cubicst.html}{http://www.2dcurves.com/cubic/cubics
t.html} \cite{MC}, o obecné strofoidě pak pojednává článek
\href{http://en.wikipedia.org/wiki/Strophoid}{http://en.wikipedia.org/wiki/Strophoid}
\cite{Wiki} .
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%%%%% Seznam literatury %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

%%%%%%%%%%%%%%%%% Definice nového jména seznamu %%%%%%%%%%%%%%%%%%%%%%%
\def\refname{Literatura}

%%%%%%%%%%%%%%%%% Vlastní seznam %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\begin{thebibliography}{99}
\bibitem{Au} Audin, M. {\it Geometry}. Springer-Verlag Berlin. 2003. 362 s.
ISBN 3-540-43498-4.
\bibitem{Wiki} Strophoid. {\it Wikipedia: The Free Encyclopedia} [online]. [citováno
2011-12-11].\\
Dostupné z URL \verb@http://en.wikipedia.org/wiki/Strophoid@
\bibitem{MC} (right) strophoid. {\it Mathematical curves} [online]. [citováno 2011-12-
11]. \\
Dostupné z URL \verb@http://www.2dcurves.com/cubic/cubicst.html@
\end{thebibliography}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\end{document}
```