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%this defined the document style
\documentclass[a4paper]{article}

%Here all the necessary packages are included, so that the processor can read the commands
\usepackage[ngerman]{babel}
\usepackage{epsfig}

\usepackage{epsfig}
\usepackage{graphicx}
\usepackage[fleqn]{amsmath}
\usepackage{amssymb}
\usepackage{url}
\usepackage{amsthm}

\usepackage{graphicx}

%now I am starting my document
\begin{document}

%Example 1
\begin{center}
Hello\
\underline{MST} \emph{students}
\end{center}
I love \begin{large} LaTeX \end{large} $100$ \% \footnote{based on a $100$ percent scale}. \
%believe it or not :)

%next page
\newpage

%Example 2
The mathematical formula from pythagoras states
\begin{equation}\label{Pyth}
a^{2}+b^{2}=c^{2}.
\end{equation}
In \eqref{Pyth}
\begin{itemize}
\item $c$ = $ length of the hypotenuse
\item $a$, $b$ = $ lengths of the other sides
\end{itemize}

%make some vertical space
\vspace{20mm}

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%Example 3
\begin{align*}
y_{k} &= x_{k} - z_{k}, \\
&= x_{k+\omega} - z_{k+\omega}.
\end{align*}
\begin{multline*}
i+j+k+l+m+n \\
+o+p+q+r+s+t
\end{multline*}
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% go to the next page
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%Example 4
\begin{tabular}{|l|l|l|l|p{5cm}|} \hline
Form of the roots & Form of solution  $y_i$  & m.g.s.  $y(t)$  \\ \hline
 $r_1, r_2 \in \mathcal{R}, r_1 \neq r_2$  &  $y_1 = e^{r_1 t}, y_2 = e^{r_2 t}$  &  $y(t) = c_1 y_1 + c_2 y_2$  \\ \hline
 $r_1 = r_2 \in \mathcal{R}$  &  $y_1 = e^{r_1 t}, y_2 = t e^{r_1 t}$  &  $y(t) = (c_1 + c_2 t) e^{r_1 t}$  \\ \hline
 $\frac{1}{2} = \lambda \pm i\mu$  &  $y_1 = e^{\lambda t} \cos(\mu t), y_2 = e^{\lambda t} \sin(\mu t)$  &  $y(t) = e^{\lambda t} (c_1 \cos(\mu t) + c_2 \sin(\mu t))$  \\ \hline
\end{tabular}
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%go to the next page
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%Note that this example might not work for you, unless you have in the same folder a pdf-file named bild3
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```
%\setlength{\unitlength}{0.8cm}
%\begin{picture}
%\put(0,0){\includegraphics[
% width=15cm,height=15cm]{bild3.pdf}} %You need to replace "bild3" with the name of you
picture(pdf file)
%\end{picture}
```

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% go to the next page
\newpage
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%Example 5
\setlength{\unitlength}{0.8cm}
\begin{picture}(20,20)
\put(10,10){\vector(1,0){10}}
\put(10,10){\vector(4,1){10}}
\put(10,10){\circle{5}}
\end{picture}
```

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%End Document
\end{document}
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