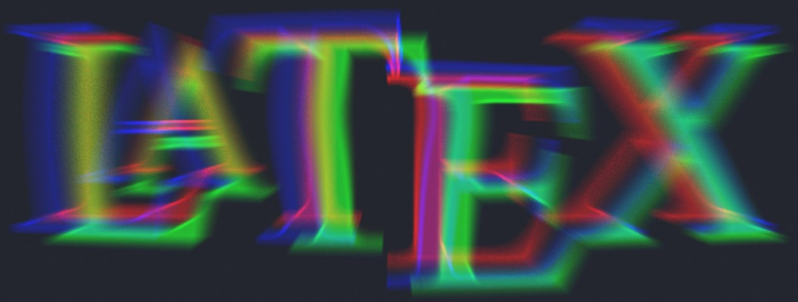
# Latex in Examples



Thanks to me

Examples in this book is updated every week.

# Contents

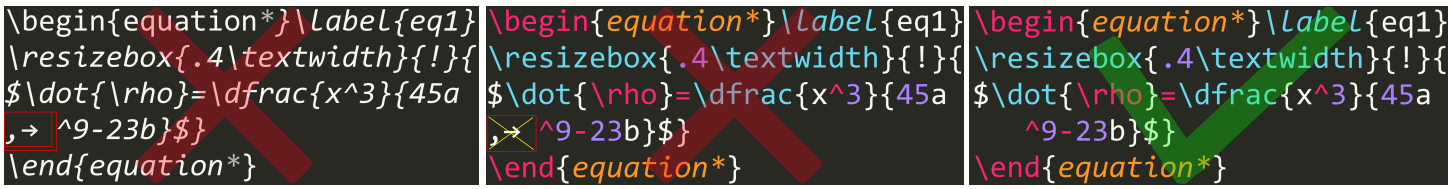



Figure 1: **how CORRECT paste code from example**

# Chapter 1

# Math Tips

## 1.1 Auto-resizing equation

$$\dot{\rho} = \frac{x^3}{45a^9 - 23b}$$

```
\begin{equation*}\label{eq1}
\resizebox{.4\textwidth}{!}{ % change .4 to 0.5...
$\dot{\rho}=\dfrac{x^3}{45a^9-23b}$}
\end{equation*}
```

## 1.2 Form for simplest calculation

Fill with number
if it does't work try another PDF viewer

a:

b:

c:

$\sum =$ 0

```
\documentclass{article}
\usepackage{hyperref}
\begin{document}
\newcommand{\sss}[1]{this.getField("#1").value}
\begin{Form}
\noindent%
Fill with number\\

\TextField[name=a]{a:} \\

\TextField[name=b]{b:} \\

\TextField[name=c]{c:} \\
\noindent%
$\sum = $ \TextField[name=AvgStat, calculate={
  event.value = (
     \sss{a} +
     \sss{b} +
     \sss{c}) ;
}, readonly, value=0]{}
\end{Form}
\end{document}
```

## 1.3 Equation in the form of steps

$$\frac{n_0}{n_1} = q_1 + \dfrac{\makebox[\mywd][l]{$1$}}{\makebox[\mywd][l]{$q_2 + \dfrac{\makebox[\mywd][l]{$1$}}{\makebox[\mywd][l]{$q_3 + \dfrac{\makebox[\mywd][l]{$1$}}{\makebox[\mywd][l]{$q_4 + \ddots + \dfrac{\makebox[\mywd][l]{$1$}}{\makebox[\mywd][l]{$q_{k-1} + \dfrac{\makebox[\mywd][l]{$1$}}{\makebox[\mywd][l]{$q_k$}}$}}$}}$}}$}}$}}$$

```
\documentclass{article}
\usepackage{amsmath}
\def\mywd{35pt}
\begin{document}
\[
  \frac{n_0}{n_1} = q_1 + \dfrac{\makebox[\mywd][l]{
      ↪ $1$}}
  {\makebox[\mywd][l]{$q_2 + \dfrac{\makebox[\mywd][l]{
      ↪ $1$}}
  {\makebox[\mywd][l]{$q_3 + \dfrac{\makebox[\mywd][l]{
      ↪ $1$}}
  {\makebox[\mywd][l]{$q_4 +
   \raisebox{-6pt}{$\ddots$}
   \raisebox{-12pt}{+$\dfrac{\makebox[\mywd][l]{$1\
       ↪ kern30pt$}}
  {q_{k-1} + \dfrac{1}
  {q_k}}$}$}}$}}$}}$}}
\]
\end{document}
```

## 1.4 One number for multiline equation

$$\begin{aligned} x_{ij} &= d_{ijk}E_k, \\ x_{ij} &= \varsigma_{ijk}H_k, \\ x_{ij} &= s_{ijkl}X_{kl}, \\ x_{ij} &= \xi_{ij}\delta p, \\ x_{ij} &= \alpha_{ij}\delta T \end{aligned} \tag{1.1}$$

```
\documentclass{article}
\usepackage{amsmath}
\begin{document}
\begin{equation}
\begin{aligned}
x_{ij} &= d_{ijk}E_k, \\
x_{ij} &= \varsigma_{ijk}H_k,\\
x_{ij} &= s_{ijkl}X_{kl},\\
x_{ij} &= \xi_{ij}\delta p,\\
x_{ij} &= \alpha_{ij}\delta T
\end{aligned}
\end{equation}
\end{document}
```

## 1.5 Matrix in standalone documentclass

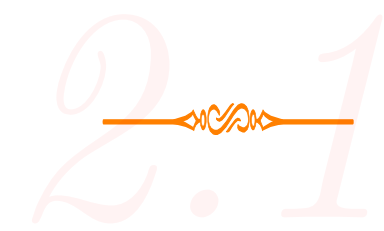
$$\begin{matrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{matrix}$$

```
\documentclass[preview,border={-5cm 0cm -5cm -0.1cm}]{
    ↪ standalone}
\usepackage{amsmath}
\begin{document}
\begin{equation*}
\begin{matrix}
a_{11} & a_{12} & a_{13} \\
a_{21} & a_{22} & a_{23} \\
a_{31} & a_{32} & a_{33} \\
\end{matrix}
\end{equation*}
\end{document}
```

# Chapter 2

# Symbols

## 2.1 New section symbol



```
\usepackage[object=vectorian]{pgfornament}
\usepackage{lipsum,tikz}
\newcommand{\sectionlinetwo}[2]{%
\nointerlineskip \vspace{.5\baselineskip}\hspace{\fill}
{\color{#1}\resizebox{0.5\linewidth}{2ex}
{{{\begin{tikzpicture}
\node (C) at (0,0) {};\node (D) at (9,0) {};
\path (C) to [ornament=#2] (D);
\end{tikzpicture}}}}}%
\hspace{\fill}\par\nointerlineskip
\vspace{.5\baselineskip}}
%usage---> \sectionlinetwo{orange}{88}
```

# Chapter 3

# Code, listings, minted ...

## 3.1 Code listing using *minted* in beamer

Python Code Example

```
1  import glob
2
```

```
\documentclass{beamer}
\usepackage{amsmath}
\usepackage{tcolorbox}
\tcbuselibrary{minted,skins,breakable}
\newtcblisting{pythoncode}[2][]{
  listing engine=minted, breakable, colback=bg,
  colframe=black!70, listing only,
  minted style=colorful, minted language=python,
  minted options={numbersep=3mm,texcl=true,#1},
  left=5mm,enhanced,
  overlay={\begin{tcbclipinterior}\fill[black!25] (frame.south west)
rectangle ([xshift=5mm]frame.north west);\end{tcbclipinterior}},
#2,}
\begin{document}
\begin{frame}[fragile]
    \frametitle{Premature Optimization}
    \begin{pythoncode}[linenos=true,]{title=Python Code
        ↪ Example}
    import glob
    \end{pythoncode}
\end{frame}
\end{document}
```

## 3.2 "Zebra" style listing

```
/**
* Prints Hello World.
**/
#include <stdio.h>

int main(void) {
   printf("Hello World!");
   return 0;
}
```

```
\documentclass{article}
\usepackage[T1]{fontenc}
\usepackage{beramono}
\usepackage{listings}
\usepackage{xcolor}
\newcommand\realnumberstyle[1]{}
\makeatletter
\newcommand{\zebra}[3]{%
    {\realnumberstyle{#3}}%
    \begingroup
    \lst@basicstyle
    \ifodd\value{lstnumber}%
        \color{#1}%
    \else
        \color{#2}%
    \fi
        \rlap{\hspace*{\lst@numbersep}%
        \color@block{\linewidth}{\ht\strutbox}{\dp\strutbox}%
        }%
    \endgroup}
\makeatother
\begin{document}
\begin{lstlisting}[language=C,basicstyle=\ttfamily,
numberstyle=\zebra{green!35}{yellow!35},numbers=left]
/**
* Prints Hello World.
**/
#include <stdio.h>
int main(void) {
   printf("Hello World!");
   return 0;
}
\end{lstlisting}
\end{document}
```

## 3.3 Listing with russian language

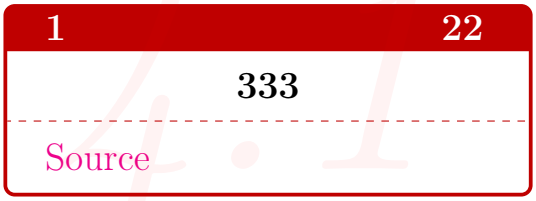
```
print("English comment"); // English comment
print("Russian comment"); // Русский комментарий
```

```
\documentclass{article}
\usepackage[T2A]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[russian]{babel}
\usepackage{listings}
\usepackage{xcolor}

\begin{document}
\lstset{ keepspaces=true,
backgroundcolor=\color{blue},
showstringspaces=false,
language=C,
extendedchars=\true,
framexrightmargin=0pt,
framexleftmargin=0pt,
framextopmargin=15pt,
framexbottommargin=15pt,
frame=tb, framerule=0pt,
basicstyle=\color{yellow}\ttfamily\small}

begin{lstlisting}% <<<<<<<<<< add "/"
print("English comment"); // English comment
print("Russian comment"); // %here can be russian words
end{lstlisting}% <<<<<<<<<< add "/"

\end{document}
```

# Chapter 4

# Tables, boxes and so on

## 4.1 Nice tcolorbox




```
\PassOptionsToPackage{svgnames}{xcolor}
\documentclass[twocolumn,a4paper]{article}
\usepackage{tcolorbox}
\tcbuselibrary{skins,breakable}
\usetikzlibrary{shadings,shadows}%preambule
\begin{tcolorbox}[colback=white!100,colframe=red!75!black,width
    ↪ =7cm,righttitle=0.5cm, subtitle style={boxrule=0.4pt,
    ↪ colback=yellow!50!red!25!white},title= \bf{1}\hfill \bf{22}]
      \begin{center}\bf{333}\end{center}
      \tcblower
      \href{https://tools.ietf.org/doc/texlive-doc/latex/tcolorbox
          ↪ /tcolorbox.pdf}{URL}
\end{tcolorbox}
```

## 4.2 empty

## 4.3 empty

## 4.4 *Table with the desired length.*

## 4.5 empty

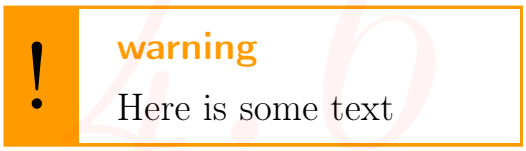
Table 1: **Caption**

| Variant | res | Veriaty of waters $f_0$, res | C, res | L, res |
|---|---|---|---|---|
| 5 | 1 | 2 | 1.26 | 5 |

*a command was also created to make a new cell view in the table*

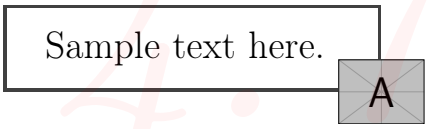
```
\usepackage{graphicx}
\usepackage{tabularx}
\newcolumntype{Y}{>{\centering\arraybackslash}X}
\begin{document}
\begin{table}[h!]
\begin{center}
\caption{\textbf{Caption}}
  \begin{tabularx}{14cm}{|Y|Y|c|Y|Y|}
  \hline
  Variant & res & Veriaty of waters $f_0$, res & C, res & L, res\\
  \hline
  5 & 1 & 2 & 1.26 & 5\\
  \hline
  \end{tabularx}
\end{center}
\end{table}
```

## 4.6 Warning banner




```
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage[most]{tcolorbox}
\definecolor{orang}{RGB}{255,155,0}
\newtcolorbox[auto counter,number within=section]{caja}[1][]{
enhanced jigsaw,colback=white,colframe=orang,coltitle=orang,
fonttitle=\bfseries\sffamily,
sharp corners,
detach title,
leftrule=10mm,
% What you need %%%%%%%%%%%
underlay unbroken and first={\node[below,text=black,anchor=east]
at ([xshift=-5.5pt]interior.base west) {\Huge \textbf{!}};},
%%%%%%%%%%%%%%%%%%%%%%%%%
breakable,pad at break=1mm,
#1,
code={\ifdefempty{\tcbtitletext}{}{\tcbset{before upper={\
    ↪ tcbtitle\par\medskip}}}},}
\begin{document}
\begin{caja}[title=warning]
The vertical alignment settings
\end{caja}
\end{document}
```

## 4.7 Photo positioning




```
\documentclass{article}
\usepackage[most]{tcolorbox}
\usepackage{graphicx}
\begin{document}
\begin{tcolorbox}[enhanced,sharp corners,
width={5cm},
colback=white,
overlay={\node at (frame.south east) {\includegraphics[scale=0.1]{
    ↪ example-image-a}};} ]
Sample text here.
\end{tcolorbox}
\end{document}
```

## 4.8 Absolutely centered cells (vertically and horisontally)

| all | in | cells |
|---|---|---|
| are | centered | vertically |
| and | horisontally | $\sum$ |

```
\documentclass{article}
\usepackage{float}
\usepackage{array, makecell}
\setcellgapes{5pt}

\begin{document}
\begin{table}[H]
\center
\makegapedcells
    \begin{tabular}{|c|c|c|c|}
    \hline
1&1&1&1\\ \hline
1&1&1&1\\ \hline
1&1&1&1\\ \hline

\end{tabular}
\end{table}

\end{document}
```

## 4.9 Martix made of table

$$d_{n+1}\begin{vmatrix} a_{1,1} & \dots, a_{1,n} & 0 \\ a_{1,1} & \dots, a_{1,n} & 0 \\ \dots\dots\dots & & \\ a_{1,1} & \dots, a_{1,n} & 0 \\ & & \\ a_{1,1} & \dots, a_{1,n} & 0 \\ a_{1,1} & \dots, a_{1,n} & 0 \\ \dots\dots\dots & & \\ a_{1,1} & \dots, a_{1,n} & 0 \end{vmatrix} = 0$$

```
\documentclass[a4paper,14pt]{extreport}
\begin{document}
\begin{table}[]
\begin{tabular}{l|l c r|l}
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
& \multicolumn{3}{l|}{\dotfill} & \\
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
$d_{n+1}$ & & & = $\pm 2ad_n$ = 0 \\
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
& \multicolumn{3}{l|}{\dotfill} & \\
& $a_{1,1}$ & $\dots, a_{1,n}$ & 0 & \\
\end{tabular}
\end{table}
\end{document}
```

## 4.10 Centering cells with NiceTabular

| | | |
|---|---|---|
| 1 | 1 | EVERY |
| 1 | 1 | CELL |
| 1 | 1 | CENTERED |

```
\documentclass{article}
\usepackage[table]{xcolor}
\usepackage{nicematrix}
\NiceMatrixOptions{cell-space-top-limit=5pt,cell-space-bottom-
    ↪ limit=5pt}

\begin{document}
\begin{table}[htbp]
\centering
\begin{NiceTabular}{|c|c|c|}
\hline
\cellcolor{red}1& \cellcolor{green}1 & 1 \\ \hline
\cellcolor{orange}1 & \cellcolor{red!35}1 & 1 \\ \hline
\cellcolor{green!35}1 & \cellcolor{blue!45}1 & 1 \\ \hline
\end{NiceTabular}
\end{table}
\end{document}
```

## 4.11 Centered cells in longtable

| Enum | Example | Description |
|---|---|---|
| 1 | test | Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu. |
| 2a | test | Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu. |
| 2b | test | Quisque facilisis auctor sapien. Pellentesque gravida hendrerit lectus. Mauris rutrum sodales sapien. Fusce hendrerit sem vel lorem. Integer pellentesque massa vel augue. Integer elit tortor, feugiat quis, sagittis et, ornare non, lacus. Vestibulum posuere pellentesque eros. Quisque venenatis ipsum dictum nulla. Aliquam quis quam non metus eleifend interdum. Nam eget sapien ac mauris malesuada adipiscing. Etiam eleifend neque sed quam. Nulla facilisi. Proin a ligula. Sed id dui eu nibh egestas tincidunt. Suspendisse arcu. |

```
\documentclass{article}
\usepackage[left=1.5cm,right=1.5cm,
top=1.5cm,bottom=2cm,bindingoffset=0cm]{geometry}
\usepackage{float}
\usepackage{array, makecell}
\usepackage[utf8]{inputenc}
\usepackage{lipsum}
\usepackage{booktabs}
\usepackage{multirow}
\usepackage{pdflscape}
\usepackage{longtable, array}

\begin{document}
\begin{landscape}
\begin{longtable}{@{} *{2}{m{.15\paperwidth}} *{1}{m{.40\
    ↪ paperwidth}} @{}}
\endfirsthead
\endhead
\toprule
\textbf{Enum} & \textbf{Example} & \textbf{Description} \\
\midrule
1 & test & \lipsum[50]\\
\midrule
2a & test & \lipsum[50]\\
2b & test & \lipsum[50]\\
\bottomrule
\end{longtable}
\end{landscape}
\end{document}
```

## 4.12 If table is not wide enough

| | Item1 | Item2 | Item3 |
|---|---|---|---|
| Group1 | 0.8 | 0.1 | 0.1 |
| Group2 | 0.1 | 0.8 | 0.1 |
| Group3 | 0.1 | 0.1 | 0.8 |
| Group4 | 0.34 | 0.33 | 0.33 |

```
\documentclass{article}
\usepackage[left=1.5cm,right=1.5cm,
top=1.5cm,bottom=2cm,bindingoffset=0cm]{geometry}
\usepackage{graphicx}
\usepackage{booktabs}
\usepackage{tabularx}

\begin{document}

\begin{table}[!ht]
\caption{Vertical and lateral stresses of mortar.}
\vspace{0.5cm}
\begin{tabularx}{\textwidth}{X X X X}
        & Item1 & Item2 & Item3 \\ \midrule
Group1 & 0.8 & 0.1 & 0.1 \\
Group2 & 0.1 & 0.8 & 0.1 \\
Group3 & 0.1 & 0.1 & 0.8 \\
Group4 & 0.34 & 0.33 & 0.33 \\ \bottomrule
\end{tabularx}
\label{c}
\end{table}

\end{document}
```

## 4.13 Text next to a table

text text text

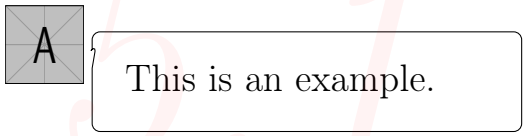
| | | |
|---|---|---|
| 1 | 22 | 333 |
| | | |
| | | |
| | | |

```
\documentclass[a4paper,14pt]{extreport}
\usepackage[left=1.5cm,right=1.5cm,top=1.5cm,bottom=2cm,
    ↪ bindingoffset=0cm]{geometry}
\usepackage{lipsum}

\begin{document}
\begin{minipage}[m]{0.58\textwidth}
text text text
\end{minipage}
\hspace{0.2cm}
\begin{minipage}[m]{0.40\textwidth}
\begin{tabular}{|c|c|c|}
\hline
1 & 22 & 333 & \\ \hline
  & &  & \\ \hline
  & &  & \\ \hline
  & &  & \\ \hline
\end{tabular}
\end{minipage}
\end{document}
```

# Chapter 5

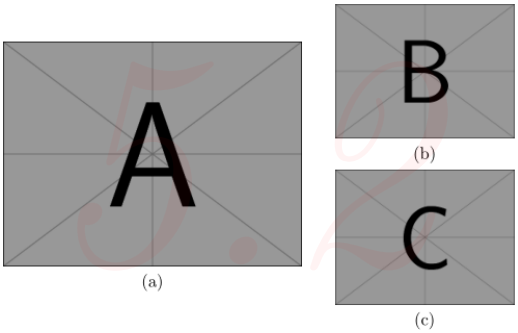
# Figures

## 5.1 Comment to figure




```
\documentclass{article}
\usepackage{tikz}
\usetikzlibrary{shapes.callouts}

\begin{document}
\begin{tikzpicture}
    \node [anchor=south west] at (0, 0) (cartoon) {\includegraphics[width
        ↪ =.15\textwidth,height=.15\textwidth]{example-image-a}};
    \node [anchor=north west,rectangle callout,draw=black,
    callout absolute pointer=(cartoon.east),
    rounded corners=3pt,text width=0.7\textwidth, inner sep=2ex] at (.19\
        ↪ textwidth,.125\textwidth) {This is an example.};
\end{tikzpicture}
\end{document}
```

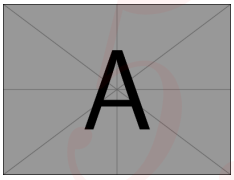
## 5.2 Positioning 1 | 2




(a) (b) (c)

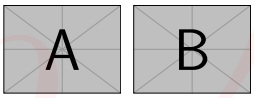
```
\documentclass{article}
\usepackage{graphicx}
\usepackage{subfig}
\begin{document}
\begin{figure}[htp]
\centering
\begin{tabular}{@{}c@{}}
\subfloat{\includegraphics[width=0.5\linewidth]{example-image-a.png}}\\ (a)
\end{tabular}\qquad % some space
\begin{tabular}{@{}c@{}}
\subfloat{\includegraphics[width=0.3\linewidth]{example-image-b.png}}\\ (b)
\\[0.1cm]
\subfloat{\includegraphics[width=0.3\linewidth]{example-image-c.png}}\\ (c)
\end{tabular}
\caption{Caption.}
\end{figure}
\end{document}
```

## 5.3 Placing image anywhere You want




```
\usepackage{graphicx}
\usepackage{tikz}
\begin{document}
\begin{tikzpicture}[overlay, remember picture]
\node[anchor=north west,xshift=4cm,yshift=-11cm]
at (current page.north west)
{\includegraphics[width=5.5cm]{example-image-a.png}};
\end{tikzpicture}
\end{document}
```

## 5.4 Italic sabfigure references




(a) *a* (b) *b*

Fig. 1*a* ← a in ***italic*** style

```
\documentclass{article}
\usepackage{graphicx}
\usepackage{subcaption}
\renewcommand\thesubfigure{{\itshape\alph{subfigure}}} %<--- added

\begin{document}
\begin{figure}
\centering
\begin{subfigure}{.25\textwidth}
\centering
\includegraphics[width=.6\linewidth]{example-image-a}
\caption{ \textit{a} }
\label{1a}
\end{subfigure}%
\begin{subfigure}{.25\textwidth}
\centering
\includegraphics[width=.715\linewidth]{example-image-b}
\caption{ \textit{b} }
\label{1b}
\end{subfigure}
\caption{ }
\label{fig1}
\end{figure}
 Fig. \ref{1a} $\leftarrow$ a in \textbf{\textit{italic}} style
\end{document}
```

# Chapter 6

# Numbering

## 6.1 Numbering in few columns

1. c
2. g
3. d
4. f

```
\documentclass{article}
\usepackage{multicol}

\begin{document}
\begin{multicols}{2}%change to have more columns
\begin{enumerate}
\item c
\item g
\item d
\item f
\end{enumerate}
\end{multicols}
\end{document}
```

## 6.2 Enumeration environment with position number in the format (i, j)

(1) First level-one item

(1,1) First level-two item

(1,2) Second level-two item

(2) Second level-one item

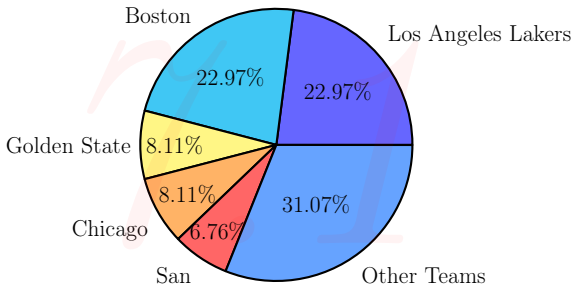
(2,1) Still another level-two item

```
\documentclass{article}
\renewcommand{\theenumi}{(\arabic{enumi})}
\renewcommand{\theenumii}{(\arabic{enumi},\arabic{enumii})}
\renewcommand{\labelenumi}{\theenumi}
\renewcommand{\labelenumii}{\theenumii}
\makeatletter
\renewcommand{\p@enumii}{}
\makeatother

\begin{document}
\begin{enumerate}
\item First level-one item
  \begin{enumerate}
  \item First level-two item
  \item Second level-two item
  \end{enumerate}
\item Second level-one item
  \begin{enumerate}
  \item Still another level-two item
  \end{enumerate}
\end{enumerate}
\end{document}
```

# Chapter 7

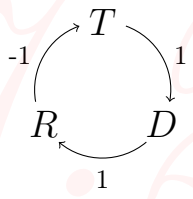
# Plots, tikz, pie charts ...

## 7.1 Simple pie chart



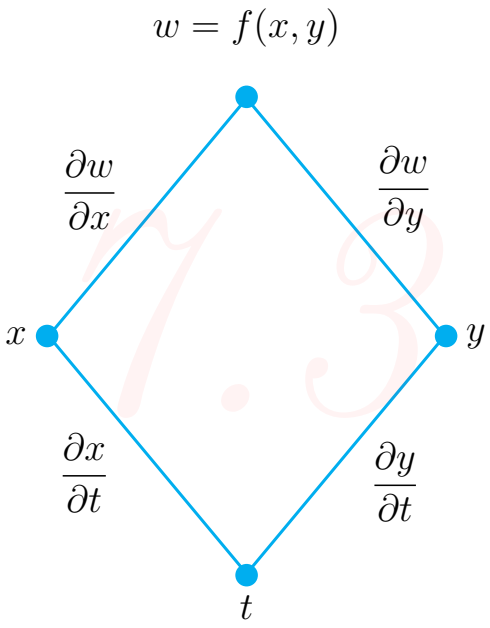

```
\documentclass[border=0.2cm]{standalone}
\usepackage{pgf-pie}

\begin{document}
\begin{tikzpicture}
\pie{22.97/Los Angeles Lakers,
22.97/Boston Celtics,
8.11/Golden State Warriors,
8.11/Chicago Bulls,
6.76/San Antonio Spurs,
31.07/Other Teams}
\end{tikzpicture}
\end{document}
```

## 7.2 Circled arrows with text




```
\documentclass{article}
\usepackage{tikz}

\begin{document}
\begin{tikzpicture}[->,scale=.7]
\node (i) at (90:1cm) {$T$};
\node (j) at (-30:1cm) {$D$};
\node (k) at (210:1cm) {$R$};
\draw (70:1cm) arc (70:-10:1cm) node[midway, right] {{\footnotesize 1}};
\draw (-50:1cm) arc (-50:-130:1cm) node[midway, below] {{\footnotesize 1}};
\draw (190:1cm) arc (190:110:1cm) node[midway, left] {{\footnotesize -1}};
\end{tikzpicture}
\end{document}
```

# 7.3 Diamond with text




```
\documentclass[a4paper,14pt]{extreport}
\usepackage[left=1.5cm,right=1.5cm,top=1.5cm,bottom=2cm,bindingoffset=0
    ↪ cm]{geometry}
\usepackage{amsmath}
\usepackage{tikz}
\usetikzlibrary{shapes.geometric}

\begin{document}
\begin{tikzpicture}
\node[diamond,font=\small,
line width=0.4mm,scale=0.7,
    draw = cyan, minimum width = 7.5cm, %text = red,
    minimum height = 9cm] (d) at (0,0) { };
      \node [above=0.5cm] (a) at (d.90) {$w = f(x,y)$};
      \node [above=0.5cm,right=0.1cm] (b) at (d.45) {$\dfrac{\partial w}{\
          ↪ partial y}$};
      \node [above=0.5cm,left=0.1cm] (c) at (d.135) {$\dfrac{\partial w}{\
          ↪ partial x}$};
      \node [left=0.1cm] (dd) at (d.180) {$x$};
      \node [right=0.1cm] (e) at (d.0) {$y$};
      \node [below=0.1cm] (f) at (d.270) {$t$};
      \node [below=0.9cm,right=-0.3cm] (g) at (d.-30) {$\dfrac{\partial y}{\
          ↪ partial t}$};
      \node [below=0.5cm,left=0.1cm] (h) at (d.220) {$\dfrac{\partial x}{\
          ↪ partial t}$};
      \node at (d.90) [cyan,circle,fill,inner sep=3pt]{};
      \node at (d.180) [cyan,circle,fill,inner sep=3pt]{};
      \node at (d.0) [cyan,circle,fill,inner sep=3pt]{};
      \node at (d.270) [cyan,circle,fill,inner sep=3pt]{};
\end{tikzpicture}
\end{document}
```

# Chapter 8

# Highlighting

## 8.1 Words highlighting 1

The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.

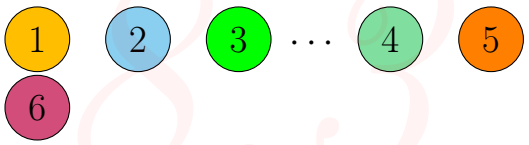
```
\documentclass{article}
\usepackage{tcolorbox}
\newtcbox{\mybox}[1][red]{on line,
arc=0pt,outer arc=0pt,colback=#1!10!white,colframe=#1!50!black,
boxsep=0pt,left=1pt,right=1pt,top=2pt,bottom=2pt,
boxrule=0pt,bottomrule=1pt,toprule=1pt}
\newtcbox{\xmybox}[1][red]{on line,
arc=7pt,colback=#1!10!white,colframe=#1!50!black,
before upper={\rule[-3pt]{0pt}{10pt}},boxrule=1pt,
boxsep=0pt,left=6pt,right=6pt,top=2pt,bottom=2pt}
\begin{document}
The \mybox[green]{quick} brown \mybox{fox}...\par
The \xmybox[green]{quick} brown \xmybox{fox} ...
\end{document}
```

## 8.2 Unusual words highlighting

Here You can see TYP more examples and learn something new.

```
\usepackage[many]{tcolorbox}
\newtcbox{\mylib}{enhanced,nobeforeafter, tcbox raise base, boxrule=0.4pt,
    ↪ top=0mm, bottom=0mm,
  right=0mm, left=4mm, arc=1pt, boxsep=2pt, before upper={\vphantom{dlg
    ↪ }}, colframe=green!50!black, coltext=green!25!black, colback=green
    ↪ !10!white, overlay={\begin{tcbclipinterior} \fill[green!75!blue!50!
    ↪ white] (frame.south west) rectangle node[text=white,font=\sffamily\
    ↪ bfseries\tiny,rotate=90] {TYP} ([xshift=4mm]frame.north west);\
    ↪ end{tcbclipinterior}}}
\begin{document}
\mylib{recieve}
\end{document}
```

## 8.3 Colored circles




```
\usepackage{tikz}
\usepackage[framemethod=TikZ]{mdframed}
\usepackage{xcolor}
\usetikzlibrary{calc}
\makeatletter
\newlength{\mylength}
\xdef\CircleFactor{1.1}
\setlength\mylength{\dimexpr\f@size pt}
\newsavebox{\mybox}
\newcommand*\circled[2][draw=blue]{\savebox\mybox{\vbox{\vphantom{
    ↪ WL1/}#1}}\setlength\mylength{\dimexpr\CircleFactor\dimexpr\ht\
    ↪ mybox+\dp\mybox\relax\relax}\tikzset{mystyle/.style={circle,#1,
    ↪ minimum height={\mylength}}} \tikz[baseline=(char.base)]
\node[mystyle] (char) {#2};}
\makeatother
\definecolor{amber}{rgb}{1.0, 0.75, 0.0}
\definecolor{babyblue}{rgb}{0.54, 0.81, 0.94}
usage --> \circled[fill=amber,draw=black]{1}
```

## 8.4 Whole line colored

some text
some text
some text

```
\documentclass{article}
\usepackage{xcolor}
\newcommand{\hly}[2]{\colorbox{#1!80}{\parbox{\textwidth}{#2}}}

\begin{document}
%\hly{YOURcolor}{some text}
\hly{green}{some text}
\hly{yellow}{some text}
\hly{red}{some text}
\end{document}
```