

This is document shown effect for some L<sup>A</sup>T<sub>E</sub>X commands as a reminder. You can turn to "The not so Short Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>" for more infomation.

## 1 Common

### 1.1 Special Character

# \$ % & { } \_ ^ ~ \

### 1.2 Ligature

ff fi ffi fl ffl  
ff fi ffi fl ffl

### 1.3 punctuation

"double quote"  
hyphen: X-ray  
en-dash: 13–16  
em-dash: yes—or no?  
(l)dots: ..., ...  
~ and ~

### 1.4 west European symbols

Hôtel, naïve, smørrebrød, Scholoß  
MORE ON MANUAL

### 1.5 symbols in text mode

¶ § † ‡ © £ \* \* · • ® ™  
T<sub>E</sub>X L<sup>A</sup>T<sub>E</sub>X L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>  
MORE ON MANUAL

### 1.6 text decoration

underline  
uline  
*emph and* emph in emph

### 1.7 break

spacing will not break ~: This will not break  
break with length: \\

, \newline page break: \newpage, \clearpage  
 \linebreak[priority(0~4)]  
 \nolinebreak[]/pagebreak[]/nopagebreak[] word break: supercalifragilisticexpi-  
 alidocious

## 1.8 Chapter and catalog

article: section, subsection, subsubsection  
report/book: chapter, section, subsection  
paragraph subparagraph

### Paragraph

#### Subparagraph

## Part I

# part

\tableofcontents: generate a new chapter  
 \addcontentslinetocsection/chaptertitle  
 \appendix: Chapter is encoded from A  
In book: frontmatter, mainmatter, backmatter

## 1.9 title

\title/author/date  
 \maketitle(in article not new page, in book/report does)  
 \renewcommand\maketitle\{titlepage} \{titlepage}

## 1.10 ref

\labellabel-name  
 \labellabel-name on page \pagereflabel-name

## 1.11 footnote

footnote\*  
First \footnotemark, then in proper place \footnotetext marginnot

---

\*footnote here

Here is  
marginpar

## 2 Environment

### 2.1 list

1. default marker in enumerate
- \* star marker
- default marker in itemize
- + nest at most 4 levels

**Description** description shows bold keyword

**Second** Hi

```
renewcommand\labelitemi/ii/iii/iv
renewcommand\labelenumi/ii/iii/iv
```

### 2.2 align

`\begin{center/flushleft/flushright}` `\end{center}`  
or by `\centering/raggedright/raggedleft`  
The different is that the former one will generate an extra margin

### 2.3 quote

short quote without first line indent  
first line indent in quotation  
first line inversed line indent in verse

### 2.4 code

verbatim environment. use verbatim package to get better support

```
UUUUUUUUUUverbatimUUenvironmentUUwithUUstar.UUWithUUpackageUU\verbatiminputUUcanUUbeUUused
UUUUUUUUUUmoreUUsupportUUinUUlistingsUUandUUfancyvrb
UUUUUU
\verb delim word delim
```

### 2.5 tabular

| tabular in |  
| text. |  
| \*{5}c equals c|c|c|c|c|  
For p to be centered, `>\centering\arraybackslash` can be used  
In package array, p,m,b are introduced.  
With package multirow, we can yuse multirow  
control line space in form. `renewcommand arraystretch`

left	center	right	par box with fixed width
L	C	R	P

Table 1: caption

@:@{ } delete margin  
@:@{delim} add delim

| >{ }\* add delim and font  
| <{ }\* add delim and frontmatter

			a b c
		a b c	d e f
pos	a b c	d e f	g h i
	d e f	g h i	
	g h i		

Table 2: tabularx

A	B	C	D
a	b	c	d
use cline to get part line			
tabularnewline			

1	2	Center
3		Right
4		C

	Value	
Item	First	Second
A	1	2

a	b	c
a	e	f
	e	f
b	c	

## 2.6 graph

use package graphicx  
includegraphics[options]{filename}  
graphicspath{{figures/}{logo/}}  
options: width, height, angle begin{figure}

## 2.7 box

|mbox|  
op1: fixed width op2: c(default)lrs  
|This is s|  
fbox  
framebox  

use setlength to adjust fboxrule and fboxsep

parbox  
t: top,  
b:  
bot-  
tom, s,  
c  
op1:  
tbcs op2:  
height Rule  box (width,height)  
op3:  and  box  
tbcs nc:   
A line  
width

## 2.8 table and figure

parameter*	meaning
h	here
t	top(not exceed 70%)
b	bottom(not exceed 30%)
p	single
!	omit limitation
H	package float, Here

here table

1:2  
2:3

use listoftables and listoffigures to generate context  
Three ways to lie alongside figures

---

\*Always in h-t-b-p

- One caption: use qquad and `\[...pt]`
- Self caption: add minipage in first way in float body
- Double caption: use subfloat{ } to surround minipage environment with package subfloat

### 3 Math

#### 3.1 Arragement and Symbol

$$\text{equation has serial number}\,a^2+b^2=c^2\tag{1}$$

Equation (1) cited with eqref

$$1+1=2$$

notag, `\[ ]` and `equation*` works in the same way

$$1+1=3\hspace{10em}(\text{wrong})$$

$$\text{Inmathenvironment}\,a\neq 3/8\qquad\frac{3}{8}\qquad\frac{3}{8}\text{tfrac}$$

$$\frac{3}{8}\qquad\frac{3}{8}\text{dfrac}\cdot\sqrt[3]{\frac{3}{8}}\neq\binom{n}{k}$$

relationship:  $\leq\leq\leqslant\approx\propto\sim$

$\ast\times\cdot/\div$

module:  $a\bmod d=c$  then  $c\equiv a\pmod b$

use DeclareMathOperator to declare operand.  $\nabla\nabla_t f(x)$

$$\sum_{i=1}^n\quad\sum_{i=1}^n\qquad\sum_{\substack{insubstack\\morelinescanbeadded}}$$

$$\sum_{\substack{withsubarray\\aligned}}$$

$$\overbrace{a+b+c}^6\overbrace{d+e+f}^7=\text{?}$$

guess

$$a\overset{nes}{\underset{op}{\rightarrow}}c$$

$$\left.\frac{\partial f}{\partial t}\right|_{\text{bigl,Bigl,biggl,Biggl alongwith the r ones.}}\Big\|\Big\|\Big\|$$

$$a+b+c$$

$$\begin{aligned} &=d+e+f\\ &=1-1 \end{aligned}$$

$$=0\tag{2}$$

$$\begin{aligned}
a &= b + c & (3) \\
&= d + e & (4) \\
&\quad + f + g & (5) \\
&= 4 & (6)
\end{aligned}$$

$$\begin{array}{ll}
a = 1 & b = 2 \\
c = 3 & d = 4
\end{array}
\tag{7}$$

$$\begin{aligned}
a &= b + c & (9) \\
d &= e + f + g & (10) \\
l + n &= m & (11)
\end{aligned}$$

To make all equations shared one seral number, use environment aligned and gathered in equation environment.

$$\begin{aligned}
|x| &= \begin{cases} -x & \text{if } x < 0, \\ 0 & \text{if } x = 0, \\ x & \text{if } x < 0. \end{cases} \\
|x| &= \begin{cases} -x & \text{if } x < 0, \\ 0 & \text{if } x = 0, \\ x & \text{if } x < 0. \end{cases}
\end{aligned}$$

Matrix and cases are all syntactic sugar of array. pmatrix(, bmatrix[, Bmatrix{, vmatrix |, Vmatrix|. dfrac should and \\[8pt] be used.  
blank space: quadd quad , black in math or text  
:; \!n math only

$$\int_a^b f(x) \, \mathrm{d}x$$

$$\begin{array}{l}
RRRRRRRR\mathcal{R}\mathcal{R} \\
\sum\sum\Sigma\Sigma \\
\boldsymbol{\mu}, M, \boldsymbol{\mu}, \boldsymbol{\Sigma}
\end{array}$$

### 3.2 theorem

newtheorem: section-level or counter  
amsthm: theoremstyle(plain, definition, remark) + newtheorem  
it also provides proof environment, and qedhere in proof(not use after equation with number) and align\*  
renewcommand qedsymbol rule{1ex}{1.5ex}  
§1 ©Φ

## 4 font

### 4.1 common

small and **textbf** and *itshape*

fontsize[size][base line-skip] (with selectfont) ><

### 4.2 length

pt	1/72.27in
bp	1/72in
in	1 inch = 2.54cm
cm	cm
mm	mm
em	width of M
ex	height of x
flexible	12pt plus 2pt minus 3pt

Use newlength to set length command. setlength and addtoplength to modify

Use linespread to set line-skip: factor\*1.2. In main part, `{\linespread{2.0}\selectfont\par}` can be used. `\setlength{\leftskip/rightskip/parindent/parskip}{length}and indent,noindent`

With indentfirst package, the first line will indent. hspace,vspace. `\hspace*{}` at the beginning. `\stretch{n}` gives a priority and `\fill` equals to `\stretch{1}` quad is hspace 1em, qquad is hspace 2em  
vertical skip: bigskip, medskip, smallskip

### 4.3 基本属性

Latex 字体有五种属性：编码、族、系列、尺寸、形状。每种属性有三种定义方式：环境、一参数命令、定义命令（有范围与无范围）

#### 4.3.1 族 family

罗马字体: rmfamily

无衬线字体: sffamily

打字机字体: ttfamily

默认: textnormal

#### 4.3.2 形状 shape

直立 upshape

意大利斜体 *itshape*

强调 *emph*

小体大写 *SCSHAPE*

小斜体 *slshape*



### 4.3.3 系列 series

中等权重 *mdseries*

粗体 **bfseries**

### 4.3.4 尺寸 size

*tiny*

*scriptsize*

*footnotesize*

*small*

*normalsize*

*large*

*Large*

*LARGE*

*huge*

*Huge*

## 4.4 附加属性

### 4.4.1 颜色 color

*red*

*white*

*orange*

### 4.4.2 下划 ulem

*uline*

uuline

wave

*sout*

dashuline

dotuline

~~*xout*~~

#### 4.4.3 强调 soul

1. *l e t t e r s p a c i n g*

2. underlining

3. ~~striking out~~

4. **highlighting**

#### 4.4.4 脚注 footnote

注释在下\* *Math*<sup>†</sup>  
重置了符号<sup>②</sup>

---

\*自动编号

†禁止脚注模式

②是什么形状呢?

## 重置了符号<sup>A</sup>

### 5 Article

#### 5.1 page

*geometry package*

`[left= ,right= ,top= ,bottom= ]`

*align: \raggedbottom and \flushbottom  
change column type will clearpage(\twocolumn),  
in twocolumn newpage will change  
column and clearpage changes page.  
columnwidth and columnseprule.*

*With a page. supported(table\*  
multicols However, and fig-  
we can table and ure\* can,  
change in figure is H can).  
not sup-*

---

<sup>A</sup>是什么形状呢?

## 5.2 heading and footnote

*pagestyle to change, thispagestyle  
to change current page.*

*style: empty, plain, headings, my-  
heading(with markboth,markright)  
fancyhdr package*

## 5.3 bib

*nocite*

*with natlib package: citep (Axford  
et al., 2013) and citet Axford et al.,  
(2013)*

## 6 color

*grey*

*rgb*

*40%red*

-red

text box

color box

*fcolorbox with textcolor*

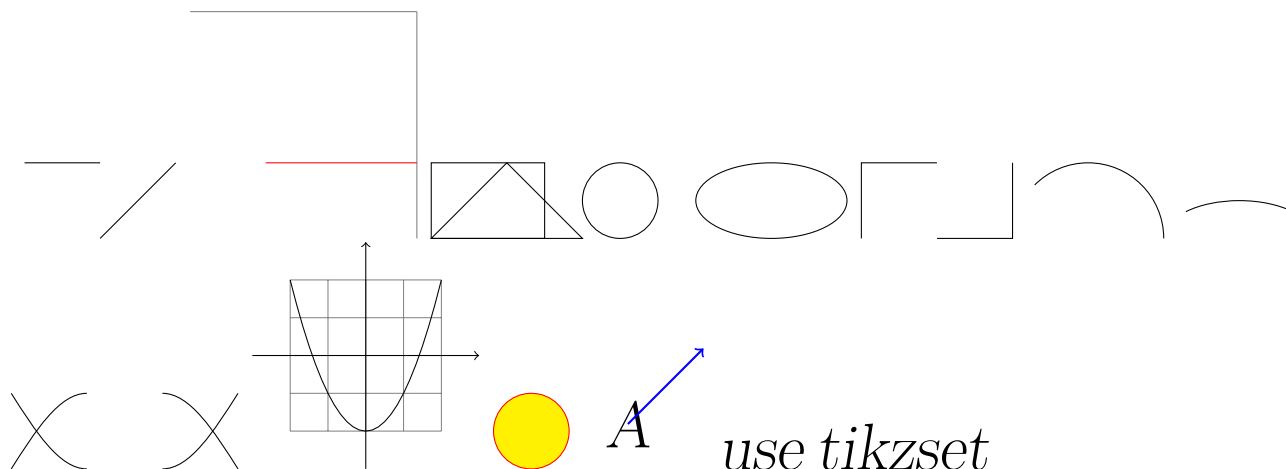
7 hyperref  $E = mc^2$

<http://github.zhengzangw.io>

[github.zhengzangw.io](http://github.zhengzangw.io) Wiki *t*

set bbookmark: \pdfbookmark[level]{bookm

8 tikz



*to set*