

# *LaTeX eBook*



IN

*Examples*

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# 1 Math Tips

## 1.1 Auto-resizing equation

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

```
\documentclass{article}
\usepackage{amsmath}
\usepackage{graphicx}

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

## 1.2 Form for simplest calculation

Fill with number

if it does't work try another PDF viewer

a:

b:

c:

$\sum =$

```
\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

$$\frac{n_0}{n_1} = q_1 + \frac{1}{q_2 + \frac{1}{q_3 + \frac{1}{q_4 + \dots + \frac{1}{q_{k-1} + \frac{1}{q_k}}}}}$$

```
\documentclass{article}
\usepackage{amsmath}
\def\mywd{35pt}

\begin{document}
\[
\frac{n_0}{n_1} = q_1 + \frac{1}{q_2 + \frac{1}{q_3 + \frac{1}{q_4 + \dots + \frac{1}{q_{k-1} + \frac{1}{q_k}}}}}
\]
\end{document}
```

### 1.4 One number for multiline equation

$$\begin{aligned} x_{ij} &= d_{ijk} E_k, \\ x_{ij} &= \varsigma_{ijk} H_k, \\ x_{ij} &= s_{ijkl} X_{kl}, \\ x_{ij} &= \xi_{ij} \delta p, \\ x_{ij} &= \alpha_{ij} \delta T \end{aligned} \tag{1}$$

```
\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}
```

## 1.6 Multiple lines, one centered label

$$\begin{aligned} A &= \frac{\pi r^2}{2} \\ &= \frac{1}{2}\pi r^2 \end{aligned} \tag{2}$$

```
\begin{equation} \label{eq1}
\begin{aligned}
A &= \frac{\pi r^2}{2} \\
&= \frac{1}{2}\pi r^2
\end{aligned}
\end{equation}
```

## 1.7 Array as a fraction

$$\begin{aligned} I - IV - V^{6-4 \atop 4-3 \atop 6-4} - I - \text{cadence} \\ I - IV - V^{6-4 \atop 4-3} - I - \text{cadence} \\ I - IV - V^{6-4 \atop 4-3} - I - \text{cadence} \end{aligned}$$

```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
$I-IV-V^{\substack{6-4 \\ 4-3 \\ 6-4}}-I-\text{cadence}$ \\
$I-IV-V^{\genfrac{}{}{0pt}{}{}{6-4}{4-3}}-I-\text{cadence}$ \\
$I-IV-V^{\begin{array}{c}6-4 \\ 4-3\end{array}}-I-$ \\
\quad \quad \quad \text{cadence} \\
\end{document}
```

## 1.8 Aligning equations inbetween text

qqq

```
\documentclass{article}
\usepackage{amsmath}

\begin{document}
\begin{alignat*}{2}
& \text{Photochemical:} \\
K_{UV} & \& M[1] \rightarrow M^*[1] \\
& \text{Catalyzed:} \\
K_I & \& I \rightarrow 2R \\
K_S & \& R + M [1] \rightarrow RM^*[1]
\end{alignat*}
\end{document}
```

## 1.9 Equation: boxed split inside align

$$A = B + C + D$$

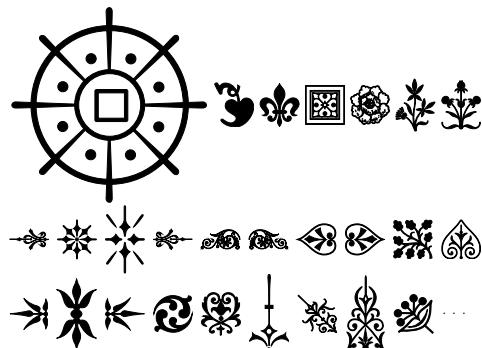
$$\boxed{A = \begin{aligned}[t] & B \text{.is\_long} \\ & + C \text{.is\_long\_too} \\ & + D \text{.is\_long\_too} \end{aligned}}$$

(1)

```
\begin{document}
\begin{align}
\begin{split}
A = & B + C + D \\
\end{split} \nonumber \\
\mathrlap{\boxed{\phantom{\begin{gathered}} A
\quad \leftarrow = \{} + C \text{.is\_long\_too} \\ 
\quad \leftarrow \text{gathered} \}} \}} \\
& \hspace{\dimexpr\fboxsep+\fboxrule-0.4pt} \\
\begin{split}
A = & \phantom{\{} + \phantom{\{} B \text{.is\_long\_too} \\
& + C \text{.is\_long\_too} \\
& + D \text{.is\_long\_too}
\end{split} \\
\end{align}
\end{document}
```

## 2 Text, Symbols

### 2.1 Ornaments from \pgfornament



```
\documentclass[varwidth]{standalone}
\usepackage[object=vectorian]{pgfornament}
\usepackage{tikz}

\begin{document}
\pgfornament[width=5cm]{4} \pgfornament[width=1cm]{5}
\pgfornament[width=1cm]{6} \pgfornament[width=1cm]{7}
\pgfornament[width=1cm]{8} \pgfornament[width=1cm]{9}
\pgfornament[width=1cm]{10} \pgfornament[width=1cm]{11}
\pgfornament[width=1cm]{12} \pgfornament[width=1cm]{13}
\pgfornament[width=1cm]{14} \pgfornament[width=1cm]{15}
\pgfornament[width=1cm]{16} \pgfornament[width=1cm]{17}
\pgfornament[width=1cm]{18} \pgfornament[width=1cm]{19}
\end{document}
```

### 2.2 Wireframe rendering

```
\documentclass{article}
\usepackage{xcolor}
\usepackage{roboto}
\usepackage[outline]{contour}

\begin{document}
\roboto\huge\contourlength{.15em}
\contour{gray}{boxed}
\end{document}
```

## 2.3 Justified text

1. First item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list
5. Fifth item in a list
6. Sixth item in a list
7. Seventh item in a list
8. Eighth item in a list
9. Ninth item in a list
10. Tenth item in a list

```
\documentclass{article}
\usepackage{blindtext}
\newcommand*\justify{%
  \fontdimen2\font=0.4em% interword space
  \fontdimen3\font=0.2em% interword stretch
  \fontdimen4\font=0.1em% interword shrink
  \fontdimen7\font=0.1em% extra space
  \hyphenchar\font='\-% allowing hyphenation
}
\begin{document}
\texttt{\justify\blindenumerate[10]}
\end{document}
```

## 2.4 Text under an underline

This is short text

```
\documentclass[12pt]{article}
\usepackage{amsmath,soul}
\usepackage{soulpos}
\ulposdef{\ulnumaux}{%
$ \underset{\rule[-.7ex]{\ulwidth}{.4pt}}{\ulnum}[2]{\def\saveulnum{\#1}%
\ulnumaux{\#2}}$}

\begin{document}
\ulnum{\text{(some text)}}{This is short text}
\end{document}
```

## 2.5 Various types of underlining

\underline{important} underlined text like important  
\uuline{urgent} double-underlined text like urgent  
\uwave{boat} wavy underline like boat  
\sout{wrong} line struck through word like wrong  
\xout{removed} marked over like ~~~~removed~~~~  
\dashuline{dashing} dashed underline like dashing  
\dotuline{dotty} dotted underline like dotty

```
\documentclass[14pt]{extreport}
\usepackage{ulem}

\begin{document}
\underline{important} \uuline{urgent}
\uwave{boat} \sout{wrong}
\xout{removed} \dashuline{dashing}
\dotuline{dotty}
\end{document}
```

## 2.6 Bullets Style

32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71
72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87
88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103
104	105	106	107	108	109	110	111
112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	
161	162	163	164	165	166	167	
168	169	170	171	172	173	174	175
176	177	178	179	180	181	182	183
184	185	186	187	188	189	190	191
192	193	194	195	196	197	198	199
200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215
216	217	218	219	220	221	222	223
224	225	226	227	228	229	230	231
232	233	234	235	236	237	238	239
241	242	243	244	245	246	247	248
248	249	250	251	252	253	254	

```
\documentclass{article}
\usepackage{pifont}

\begin{document}
\begin{itemize}
\item[\ding{51}] Code 51
\item[\ding{56}] Code 56
\item[\ding{43}] Code 43
\item[\ding{118}] Code 118
\item[\ding{170}] Code 170
\end{itemize}
\ding{46} \ding{70} \ding{57} \ding{98} \ding{96}
\end{document}
```

## 2.7 Change the title of \tableofcontents

Whatever

1	Section	1
1.1	Subsection	1
1	Section	
1.1	Subsection	

```
\documentclass{article}
\renewcommand{\contentsname}{Whatever}

\begin{document}
\tableofcontents
\subsection{\hll{Section}}
\subsection{\hll{Subsection}}
\end{document}
```