### **LaTeX Math Symbols**

# Prepared by L. Kocbach, on the basis of <u>this document</u> (origin: David Carlisle, Manchester University)

#### File A.tex contains all necessary code

This file is prepared by running

latex A.tex

and cutting the pictures out of the resulting preview. Relevant parts of the latex code are reproduced under each of the pictures.

Some of the symbols have an explanatory text. This text is found in the latex code, mostly stating that they are parts of some spacial setup and cannot be used in standard LaTeX. Each of the figures also has a link to itself.

### **Greek Letters**

$\alpha$ $\beta$ $\gamma$ $\delta$ $\epsilon$ $\epsilon$ $\zeta$	\alpha \beta \gamma \delta \epsilon \varepsilon \zeta \eta	θ ϑ γ κ λ μ υ ξ	<pre>\theta \vartheta \gamma \kappa \lambda \mu \nu \xi</pre>	ο π τω ρ ε σ ς	o \pi \varpi \rho \varrho \sigma \varsigma	τυφ φ γ χ ψ ω	\tau \upsilc \phi \varphi \chi \psi \omega
Γ Δ Θ	<b>\Gamma</b> <b>\Delta</b> <b>\Theta</b>	Д Д	\Lambda \Xi \Pi	Σ Υ Φ	\Sigma \Upsilon \Phi	Ψ	\Psi \Omega

#### Table 1: Greek Letters

#### t1.gif

\alpha	\theta	0	\tau
\beta	\vartheta	\pi	\upsilon
\gamma	\gamma	\varpi	\phi
\delta	\kappa	\rho	\varphi
\epsilon	\lambda	\varrho	\chi
\varepsilon	\mu	\sigma	\psi
\zeta	\nu	\varsigma	\omega
\eta	\xi		
\Gamma	\Lambda	\Sigma	\Psi

\Delta	\Xi	\Upsilon	\Omega
\Theta	\Pi	\Phi	

# **Binary Operation Symbols**

±	\pm	$\cap$	\cap	<b>\ \</b>	\diamond	$\oplus$	\op:
Ŧ	\mp	U	\cup	Δ	\bigtriangleup	$\Theta$	\om.
×	\times	$\forall$	\uplus	$\nabla$	\bigtriangledown	8	\ot.
*	\div	П	\sqcap	∢	\triangleleft	0	\osi
*	\ast	Ц	\sqcup	⊳	\triangleright	$\odot$	/od
*	\star	٧	\vee	◁	$ackslash \mathtt{lhd}^b$	0	\bi <sub>i</sub>
0	\circ	Λ	\wedge	$\triangleright$	$\backslash \mathtt{rhd}^b$	†	\da;
•	\bullet	\	\setminus	⊴	$ackslash{ exttt{unlhd}}^b$	‡	<b>\dd</b> :
•	\cdot	l	/WI	⊵	$ackslash \mathbf{unrhd}^b$	П	\am:
+	+	_	-				
t2.gif							

#### <u>t</u>2

```
\diamond
                                                                          \oplus
\pm
                      \cap
                      \cup
                                            \bigtriangleup
                                                                          \ominus
\mp
\times
                      \uplus
                                            \bigtriangledown
                                                                          \otimes
\div
                      \sqcap
                                            \triangleleft
                                                                          \oslash
\ast
                      \sqcup
                                            \triangleright
                                                                          \odot
                                            \hline 1hd $^b$
\star
                      \vee
                                                                          \bigcirc
                                            \rhd$^b$
\circ
                      \wedge
                                                                          \dagger
\bullet
                                            \ \n
                      \setminus
                                                                          \ddagger
\cdot
                                            \unrhd$^b$
                      \wr
                                                                          \aggreen
```

```
$^b$ Not predefined in a format based on {\tt basefont.tex}.
    Use one of the style options
     {\tt oldlfont}, {\tt newlfont}, {\tt amsfonts} or {\tt amssymb}.
```

### **Relation Symbols**

```
\equiv
        \leq
                                 \geq
                                                                              \mode
        \prec
                                 \succ
                                                          \sim
                                                                        \perp
                                                                              \perp
                                                                              \mid
        \preceq
                                 \succeq
                                                          \simeq
                                                     \simeq
       \11
                                 \gg
                                                          \asymp
                                                     \asymp
                                                                              \para
  \subset
                                 \supset
                                                     \approx
                                                          \approx
                                                                              \bowt.
                                                                        M
        \subseteq
                                 \supseteq
                                                                        M
                                                          \cong
                                                                              \Join
        \sqsubset<sup>b</sup>
                                 \sqsupset<sup>b</sup>
                                                     ≠
                                                                              \smil
                                                          \neq
        \sqsubseteq
                                 \sqsupseteq
                                                          \doteq
                                                                              \frow:
        \in
                                 \ni
                                                                              =
                                                     \alpha
                                                          \propto
        \vdash
                                 \dashv
                                                     <
                                                                              >
                                                          <
t3.gif
 \leq
                     \geq
                                       \equiv
                                                          \models
 \prec
                     \succ
                                       \sim
                                                          \perp
 \preceq
                     \succeq
                                       \simeq
                                                          \mid
 \11
                     \gg
                                       \asymp
                                                          \parallel
 \subset
                     \supset
                                       \approx
                                                          \bowtie
                                                          \Join$^b$
 \subseteq
                     \supseteq
                                       \cong
                     \sqsupset$^b$
                                                          \smile
 \sqsubset$^b$
                                       \neq
                                                          \frown
 \sqsubseteq
                     \sqsupseteq
                                       \doteq
                                       \propto
 \in
                     \ni
 \vdash
                     \dashv
$^b$ Not predefined in a format based on {\tt basefont.tex}.
    Use one of the style options
    {\tt oldlfont}, {\tt newlfont}, {\tt amsfonts} or {\tt amssymb}.
```

## **Punctuation Symbols**

```
, , ; ; \table 4: Punctuation Symbols

t4.gif
, ; \tag{colon} \tag{ldotp} \tag{cdotp}
```

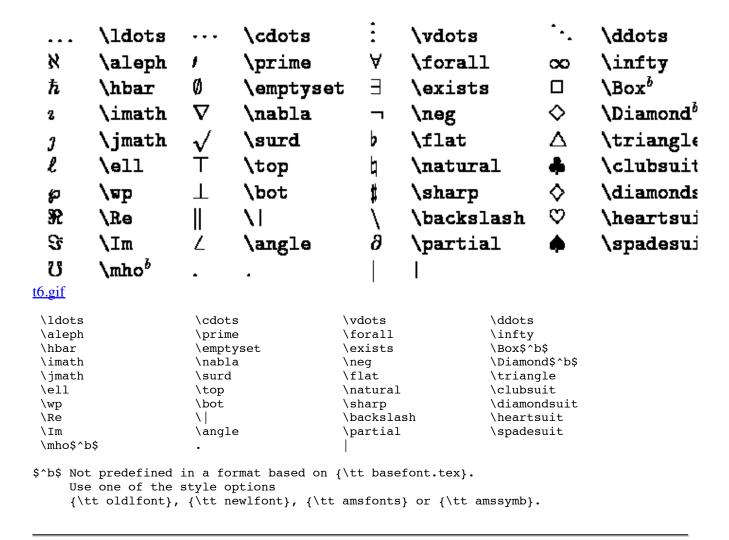
# **Arrow Symbols**

←	<b>\leftarrow</b>	←	\longleftarrow	<b>↑</b>	\u
<b>←</b>	\Leftarrow	$\leftarrow$	\Longleftarrow	$\uparrow$	\U
$\rightarrow$	\rightarrow	$\longrightarrow$	\longrightarrow	$\downarrow$	\d
$\Rightarrow$	\Rightarrow	$\Longrightarrow$	\Longrightarrow	$\downarrow$	<b>\</b> D
$\longleftrightarrow$	\leftrightarrow	$\longleftrightarrow$	\longleftrightarrow	<b>‡</b>	\u
$\Leftrightarrow$	\Leftrightarrow	$\iff$	\Longleftrightarrow	<b>‡</b>	\U
$\mapsto$	\mapsto	$\longmapsto$	\longmapsto	7	\n
$\leftarrow$	\hookleftarrow	$\hookrightarrow$	\hookrightarrow	/	\s
_	$\$ leftharpoonup		\rightharpoonup	/	\s
•	\leftharpoondown	<b>—</b>	\rightharpoondown	\	\n
$\rightleftharpoons$	\rightleftharpoons	<b>∼→</b>	$ackslash$ leadsto $^b$		
t5.gif	_				

```
\leftarrow
                                \longleftarrow
                                                               \uparrow
\Leftarrow
                                \Longleftarrow
                                                               \Uparrow
\rightarrow
                                \longrightarrow
                                                               \downarrow
\Rightarrow
                                \Longrightarrow
                                                               \Downarrow
                                \longleftrightarrow
                                                               \updownarrow
\leftrightarrow
                                \Longleftrightarrow
                                                               \Updownarrow
\Leftrightarrow
                                \longmapsto
                                                               \nearrow
\mapsto
\hookleftarrow
                                \hookrightarrow
                                                               \searrow
\leftharpoonup
                                \rightharpoonup
                                                               \swarrow
\leftharpoondown
                                \rightharpoondown
                                                               \nwarrow
\rightleftharpoons
                                \label{leadsto} \ensuremath{\mbox{\sc h}}
```

```
$^b$ Not predefined in a format based on {\tt basefont.tex}.
Use one of the style options
{\tt oldlfont}, {\tt newlfont}, {\tt amsfonts} or {\tt amssymb}.
```

# **Miscellaneous Symbols**



### Variable-sized Symbols

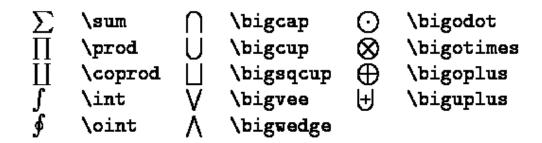


Table 7: Variable-sized Symbols

#### t7.gif

\sum	\bigcap	\bigodot
\prod	\bigcup	\bigotimes
\coprod	\bigsqcup	\bigoplus
\int	\bigvee	\biguplus

\oint

\bigwedge

### **Log-like Symbols**

\arccos	\cos	\csc	\exp	\ker	<b>\limsup</b>	\min	\sim
\arcsin	\cosh	\deg	\gcd	<b>\1g</b>	<b>\ln</b>	\Pr	\sur
\arctan	\cot	\det	\hom	\lim	\log	\sec	\tan
\arg	\coth	\dim	\inf	\liminf	\max	\sin	\tan

Table 8: Log-like Symbols

#### t8.gif

\arccos	\cos	\csc	\exp	\ker	\limsup	\min	\sinh
\arcsin	\cosh	\deg	\gcd	\lg	\ln	\Pr	\sup
\arctan	\cot	\det	\hom	\lim	\log	\sec	\tan
\arg	\coth	\dim	\inf	\liminf	\max	\sin	\tanh

### **Delimiters**

Table 9: Delimiters

#### t9.gif

# **Large Delimiters**

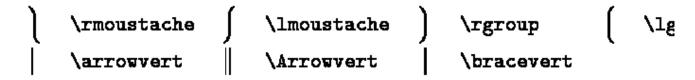


Table 10: Large Delimiters

#### <u>t10.gif</u>

\rmoustache	\lmoustache	\rgroup	\lgroup
\arrowvert	\Arrowvert	\bracevert	

### Math mode accents

â	$\hat{a}$	á	$\acute{a}$	$\bar{a}$	\bar{a}	à	$\det\{a\}$	ă
ă	$\check{a}$	à	\grave{a}	$\vec{a}$	$\vec{a}$	ä	\ddot{a}	ã

Table 11: Math mode accents

#### t11.gif

\hat{a}	\acute{a}	\bar{a}	\dot{a}	\breve{a}
\check{a}	\grave{a}	\vec{a}	\ddot{a}	\tilde{a}

### **Some other constructions**

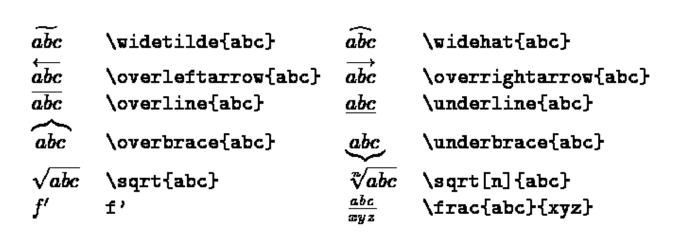


Table 12: Some other constructions

#### <u>t12.gif</u>

\widetilde{abc}
\overleftarrow{abc}
\overline{abc}
\overbrace{abc}
\sqrt{abc}
\$f'\$

\widehat{abc}
\overrightarrow{abc}
\underline{abc}
\underbrace{abc}
\sqrt[n]{abc}
\frac{abc}{xyz}

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