## **LaTeX Math Symbols**

#### Prepared by L. Kocbach, on the basis of this document (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**

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

### 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		
		\ <b>-</b> •	
\Gamma	\Lambda	\Sigma	\Psi
\Delta	\Xi	\Upsilon	\Omega
<b>\Theta</b>	\Pi	\Phi	

## **Binary Operation Symbols**

$\pm$	<b>\pm</b>	$\cap$	\cap		<b>⋄</b>	\diamond	$\oplus$	\oplus
干	\mp	U	\cup		Δ	\bigtriangleup	$\Theta$	\ominus
×	\times	⊎	\uplus		$\nabla$	\bigtriangledown	8	\otimes
*	\div	П	\sqcap		∢	\triangleleft	0	\oslash
*	\ast	$\sqcup$	\sqcup		⊳	\triangleright	⊙	\odot
*	\star	٧	\vee		◁	$ackslash \mathrm{lhd}^b$	0	\bigcirc
0	\circ	Λ	\wedge		$\triangleright$	$\backslash \mathtt{rhd}^b$	†	\dagger
•	\bullet	\	\setmin	us	⊴	$ackslash{\mathtt{unlhd}^b}$	‡	\ddagger
•	\cdot	l	/WI		⊵	$ackslash \mathbf{unrhd}^b$	${f II}$	\amalg
+	+	_	-					
t2.gif								
\pm \mp \times \div \ast \star \circ \bulle		\cap \cup \uplus \sqcap \sqcup \vee \wedge \setmin		\trian	iangle iangle glelef glerig b\$ b\$	down \otimes t \oslash		

# **Relation Symbols**

Use one of the style options

\$^b\$ Not predefined in a format based on {\tt basefont.tex}.

{\tt oldlfont}, {\tt newlfont}, {\tt amsfonts} or {\tt amssymb}.

```
\equiv
       \leq
                              \geq
                                                                      \models
                                                                     \perp
                              \succ
                                                    \sim
                                                                \perp
       \prec
       \preceq
                              \succeq
                                                    \simeq
                                                                     \mid
       \11
                                                    \asymp
                                                                     \parallel
                              \gg
       \subset
                              \supset
                                                    \approx
                                                                     \bowtie
                                               \approx
                                                                     \Join^b
       \subseteq
                              \supseteq
                                               \cong
                                                    \cong
                                                                M
       \slashsqsubset^b
                                               ¥
                              \sqsupset<sup>b</sup>
                                                                     \smile
                                                    \neq
       \sqsubseteq
                                                    \doteq
                              \sqsupseteq
                                                                     \frown
       \in
                              \ni
                                                    \propto
                                               Œ
       \vdash
                              \dashv
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                                                    <
                                                                     >
t3.gif
\leq
                                \equiv
                                                \models
                 \geq
\prec
                 \succ
                                \sim
                                                \perp
                                \simeq
                                                \mid
                 \succeq
```

```
\11
                                            \asymp
                                                                 \parallel
                       \gg
 \subset
                       \supset
                                            \approx
                                                                 \bowtie
 \subseteq
                       \supseteq
                                                                 \sigma \
                                            \cong
 \sqsubset$^b$
                       \sqsupset$^b$
                                                                 \smile
                                            \neq
 \sqsubseteq
                       \sqsupseteq
                                            \doteq
                                                                 \frown
 \in
                       \ni
                                            \propto
 \vdash
                       \dashv
$^b$ Not predefined in a format based on {\tt basefont.tex}.
     Use one of the style options
     {\t} {\t} oldIfont}, {\t} newlfont}, {\t} amsfonts} or {\t} amssymb}.
```

## **Punctuation Symbols**

```
, , ; ; : \colon . \ldotp · \cdotp
```

Table 4: Punctuation Symbols

t4.gif

, \colon \ldotp \cdotp

## **Arrow Symbols**

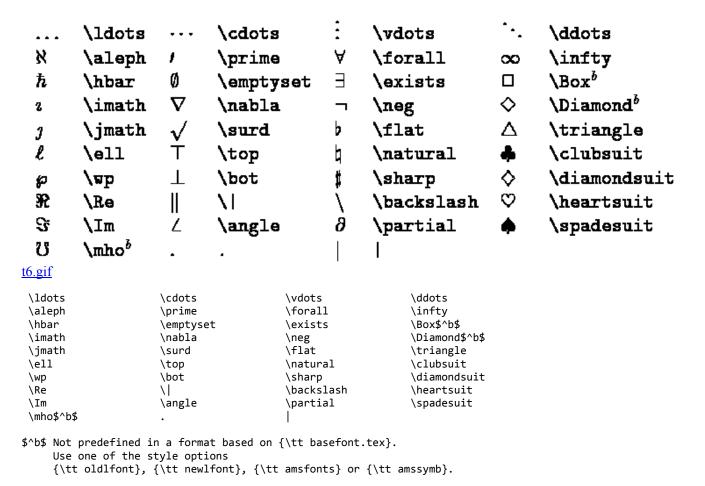
<b>←</b>	<b>\leftarrow</b>	←—	\longleftarrow	<b>↑</b>	\uparrow
<b>=</b>	\Leftarrow	$\Leftarrow$	\Longleftarrow	$\uparrow$	<b>\Uparrow</b>
$\rightarrow$	\rightarrow	$\longrightarrow$	\longrightarrow	$\downarrow$	\downarrow
$\Rightarrow$	\Rightarrow	$\Longrightarrow$	\Longrightarrow	$\downarrow$	\Downarrow
$\leftrightarrow$	\leftrightarrow	$\longleftrightarrow$	\longleftrightarrow	<b>‡</b>	\updownarrow
$\Leftrightarrow$	\Leftrightarrow	$\iff$	\Longleftrightarrow	<b>‡</b>	\Updownarrow
$\mapsto$	\mapsto	$\longmapsto$	\longmapsto	7	\nearrow
$\leftarrow$	\hookleftarrow	$\hookrightarrow$	\hookrightarrow	\	\searrow
_	\leftharpoonup		\rightharpoonup	/	\swarrow
•	\leftharpoondown	$\overline{}$	\rightharpoondown	\	\nwarrow
$\rightleftharpoons$	\rightleftharpoons	<b>~→</b>	$\backslash \texttt{leadsto}^b$	-	

## t5.gif

\leftarrow	\longleftarrow	\uparrow
\Leftarrow	\Longleftarrow	\Uparrow
\rightarrow	\longrightarrow	\downarrow
\Rightarrow	\Longrightarrow	\Downarrow
\leftrightarrow	\longleftrightarrow	\updownarrow
\Leftrightarrow	\Longleftrightarrow	\Updownarrow
\mapsto _	\longmapsto	\nearrow
\hookleftarrow	\hookrightarrow	\searrow
\leftharpoonup	\rightharpoonup	\swarrow
\leftharpoondown	\rightharpoondown	\nwarrow
\rightleftharnoons	\leadsto\$^h\$	

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

## **Miscellaneous Symbols**



## Variable-sized Symbols

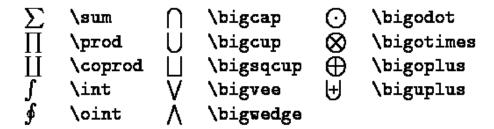


Table 7: Variable-sized Symbols

#### t7.gif

\sum \bigcap \bigodot

\prod	\bigcup	\bigotimes
\coprod	\bigsqcup	\bigoplus
\int	\bigvee	\biguplus
\oint	\bigwedge	<b>.</b>

## **Log-like Symbols**

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

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**

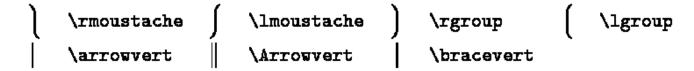


Table 10: Large Delimiters

#### t10.gif

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

### Math mode accents

â	$\hat{a}$	á	$\acute{a}$	ā	\bar{a}	$\dot{a}$	$\dot{a}$	ă	\breve{a}
ă	$\check{a}$	à	\grave{a}	$\vec{a}$	$\vec{a}$	ä	\ddot{a}	ã	$\tilde{a}$

Table 11: Math mode accents

#### <u>t11.gif</u>

#### Some other constructions

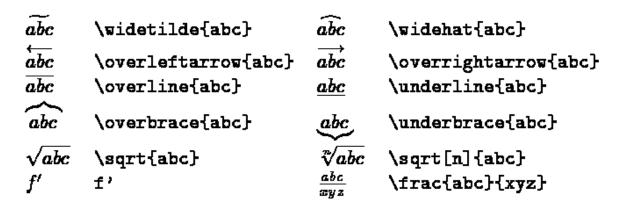


Table 12: Some other constructions

#### t12.gif

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

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