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Var. Size

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Textcomp Marvosym Pifont Chemarrow

\LaTeX and $\mathcal{A}_{\mathcal{M}}\mathcal{S}$ - \LaTeX Symbols

Emre Sermutlu

March 17, 2008

$\begin{array}{c} Introduction \ I \\ {\small About \ This \ Document} \end{array}$

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- This document lists symbols in standard LaTeX, $\mathcal{A}_{\mathcal{M}}S$ -IATEX and a few additional packages.
- The document is optimized for viewing on a computer. I recommend using it full screen (Ctrl+L for Acrobat) and then navigating by clicking the sidebar.
- You may reach the latest version of this file (and also another file using Txfonts) at academic.cankaya.edu.tr/~sermutlu.

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Introduction II Note About Packages

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- I did not separate the the AMS-IATEX symbols from the standard ones. Do not forget the include \usepackage{amsmath,amssymb,latexsym} before \begin{document} to be able to use these symbols.
- In the section Extra, I have included the packages

 Textcomp, Marvosym, Pifont and Chemarrow to give a
 taste of the rich world of LATEX. You need to install
 packages and then write \usepackage{packagename} to
 access these symbols. (If you are using MiKTeX, it will
 install packages automatically at first usage.)
- There are many more packages and thousands of symbols not included here. I recommend Scott Pakin's The Comprehensive LaTeX Symbol List for a complete listing. (It can be reached at www.ctan.org).

Introduction III About the Author

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EXTRA

- Prepared by Dr. Emre Sermutlu, Department of Mathematics and Computer Science, Cankaya University, Ankara-Turkey.
- I started this project for my personal needs, as it was unfeasible to browse books or search the internet every time I needed an unfamiliar symbol. I am using a computer whenever I am using LATEX, so I needed a file optimized for viewing on screen, not printing on paper.
- I am a fan of Beamer, which is a wonderful class for preparing Power-Point like presentations in LATEX. You are currently seeing the power of Beamer. You can learn more about it at: http://latex-beamer.sourceforge.net
- Please report errors, omissions, suggestions and any other kind of feedback to sermutlu@cankaya.edu.tr.

TEXT Symbols I

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Ø	\0	4	\textquoteleft
$ {a}$	\aa	,	\textquoteright
Å	\AA	"	\textquotedblleft
ß	\ss	"	\textquotedblright
SS	\SS		\textvisiblespace
æ	\ae	Q	\textordmasculine
Æ	\AE	a	\textordfeminine
œ	\oe	*	\textasteriskcentered
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Common Math Symbols

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IATEX

Some of these symbols may appear at other tables for user convenience

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$_{ m Emre}$	\leq	\leqslant		\mp	\iff	\iff
Sermutlu	≥	\geqslant	×	\times	\$	\\$
Introduction	\approx	\approx	÷	\div	£	\pounds
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MATH	\cong	\cong	\cap	\cap	&	\&
Common Greek	\simeq	\simeq	\in	\in	{	\{
Binary Subsets	∂	\partial	∉	\notin	}	\}
Inequalities Triangles	∞	\infty	\	\setminus	_	_
Arrows Operators	∇	\nabla	Ø	\varnothing	¶	\P
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Alphabet Brackets	ℓ	\ell	\supset	\supset	*	\ast
Dots Var. Size	\vee	\vee		\cdot	†	\dag
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Pifont Chemarrow	3	\exists	¥	\maltese	}	\wr

Greek Letters

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α	\alpha	v	\upsilon
β	\beta	ξ	\xi
γ	\gamma	au	\tau
δ	\delta	ι	\iota
λ	\lambda	η	\eta
ω	\omega	ζ	\zeta
ψ	\psi	μ	\mu
χ	\chi	ν	\nu
ρ	\rho	ϱ	\varrho
ϵ	\epsilon	ε	\varepsilon
κ	\kappa	×	\varkappa
π	\pi	$\overline{\omega}$	\varpi
ϕ	\phi	φ	\varphi
σ	\sigma	ς	\varsigma
θ	\theta	ϑ	\vartheta

Greek and Hebrew Letters

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Ι	7	\Gamma	Γ	\varGamma
Δ	7	\Delta	Δ	\varDelta
Λ	1	\Lambda	Λ	\varLambda
5	2	\Omega	Ω	\varOmega
Ι	Ι	\Pi	П	\varPi
₫	5	\Phi	Φ	\varPhi
Ŋ	Ţ	\Psi	Ψ	\varPsi
Σ	2	\Sigma	Σ	\varSigma
ϵ	•	\Theta	Θ	\varTheta
ጋ	^	\Upsilon	γ	\varUpsilon
Ξ	Ξ	\Xi	Ξ	\varXi
F	-	\digamma		

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Binary Operations I

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\oplus	\oplus	
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⊗ \otimes

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\uplus

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Binary Operations II

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Binary Relations I

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\cong	\cong	¥	\ncong
\preccurlyeq	\preccurlyeq	≽	\succcurlyeq
\curlyeqprec	\curlyeqprec	×	\curlyeqsucc
\prec	\prec	*	\nprec
\preceq	\preceq	≰	\npreceq
X≈	\precapprox	∀ ≋	\precnapprox
$\stackrel{\sim}{\sim}$	\precsim	<i>⋨</i>	\precnsim
\succ	\succ	7	\nsucc
\succeq	\succeq	¥	\nsucceq
XX	\succapprox	 ₩	\succnapprox

≿ \succnsim

Binary Relations II

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Chemarrow

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\simeq
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\backsim
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\backsimeq
                      \asymp
                       \fallingdotseq
\approx
\thickapprox
                       \risingdotseq
\approxeq
                       \bumpeq
\equiv
                       \Bumpeq
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\varpropto
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\multimap
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Subset Relations

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\subset	\subset	\supset	\supset
\subseteq	\subseteq	⊇	\supseteq
\subseteq	\subseteqq	\supseteq	\supseteqq
	\sqsubset		\sqsupset
⊑	\sqsubseteq	□	\sqsupseteq
€	\Subset	∋	\Supset
$\not\sqsubseteq$	\nsubseteq	⊉	\nsupseteq
Ç	\subsetneq	⊋	\supsetneq
⊊	\varsubsetneq	⊋	\varsupsetneq
$\not\sqsubseteq$	\nsubseteqq	⊉	\nsupseteqq
\subseteq	\subsetneqq	\supseteq	\supsetneqq
≨	\varsubsetneqq	⊋	\varsupsetneqq

Inequalities I

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Subsets
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                   \geqq
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Alphabet
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«	\11	///	\111
>>	\gg	>>>	\ggg
\lesssim	\lesssim	⋦	\lnsim
\gtrsim	\gtrsim	≥	\gnsim
≨	\lessapprox	≨	\lnapprox
\gtrapprox	\gtrapprox	⋧	\gnapprox
≶	\lessgtr	<	\lessdot
\geq	\gtrless	≫	\gtrdot
\leq	\lesseqgtr	\ <u>\</u>	\lesseqqgtr
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Triangular Relations Harpoons

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Introduction		<pre></pre>
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Binary Subsets		
Inequalities Triangles	► \blacktrianglerigh	t \ \blacktriangleleft
Arrows Operators	\triangleq \triangleq	
Functions Miscel.		
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\rightarrow	\rightarrow	←	\leftarrow
\Rightarrow	\Rightarrow	<=	\Leftarrow
\longrightarrow	\longrightarrow	←	\longleftarrow
\Longrightarrow	\Longrightarrow	⇐=	\Longleftarrow
↑	\uparrow	↓ ↓	\downarrow
\uparrow	\Uparrow	↓	\Downarrow
$\rightarrow \rightarrow$	\nrightarrow	↔	\nleftarrow
\Rightarrow	\nRightarrow	#	\nLeftarrow
\uparrow	\updownarrow	↔	\nleftrightarrow
\$	\Updownarrow	<i>₩</i>	\n
7	\nearrow	\longleftrightarrow	\leftrightarrow
_	\nwarrow	\Leftrightarrow	\Leftrightarrow
/	\swarrow	\longleftrightarrow	\longleftrightarrow
	\searrow	\iff	\Longleftrightarrow
\iff	\iff	<i>↔</i>	\leftrightsquigarrow

Arrows II

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\Rightarrow	\rightrightarrows	⊭	\leftleftarrows
\Longrightarrow	\rightleftarrows	$\stackrel{\longleftarrow}{\Longrightarrow}$	\leftrightarrows
\Rightarrow	\Rrightarrow	₩	\Lleftarrow
\hookrightarrow	\hookrightarrow	\leftarrow	\hookleftarrow
\longrightarrow	\rightarrowtail	\leftarrow	\leftarrowtail
\rightarrow	\looparrowright	↔	\looparrowleft
\longrightarrow	\twoheadrightarrow	~~	\twoheadleftarrow
\curvearrowright	\curvearrowright	\sim	\curvearrowleft
\bigcirc	\circlearrowright	Q	\circlearrowleft
 →	\dashrightarrow	←	\dashleftarrow
ightharpoons	\Rsh	↑	\Lsh
$\uparrow\uparrow$	\upuparrows	$\downarrow \downarrow$	\downdownarrows
\mapsto	\mapsto	~ →	\rightsquigarrow
\longmapsto	\longmapsto	\sim	\leadsto

Mathematical Operators

The following operators have two different sizes

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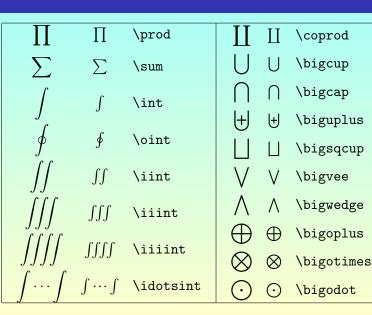
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Pure Functions

Please note that sinx (sin x) and sin x (\sin x) look totally different.

\sin	\sin	arcsin	\arcsin	\sinh	\sinh
\cos	\cos	arccos	\arccos	\cosh	\cosh
tan	\tan	arctan	\arctan	tanh	\tanh
\cot	\cot	arg	\arg	\coth	\coth
\sec	\sec	$m \mod n$	$m \mod n$	lg	\lg
\csc	\csc	$m \bmod n$	m\bmod n	\log	\log
\ln	\ln	$m \pmod{n}$	m\pmod n	exp	\exp
\dim	\dim	m(n)	m\pod n	hom	\hom
\deg	\deg			ker	\ker

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Functions with Limits

The following functions may take limits below: $\lim_{x\to 0}$ This is written as: $\lim_{x\to 0} x \to 0$

min	\min	lim inf	\liminf
max	\max	<u>lim</u>	\varliminf
\inf	\inf	\limsup	\limsup
\sup	\sup	$\overline{\lim}$	\varlimsup
\det	\det	inj lim	\injlim
gcd	\gcd	lim	\varinjlim
\Pr	\Pr	proj lim	\projlim
\lim	\lim	lim	\varprojlim

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\Im	\Im	ℓ	\ell
\Re	\Re	∂	\partial
Ø	\wp	ð	\eth
Т	\top	\imath	\imath
\perp	\bot	J	\jmath
\forall	\forall	k	\Bbbk
3	\exists	F	\Finv
∄	\nexists	G	\Game
\neg	\neg	∞	\infty
\in	\in	Ø	\emptyset
∉	\notin	Ø	\varnothing
\ni	\ni		\angle
С	\complement	4	\measuredangle
\hbar	\hbar	∢	\sphericalangle
\hbar	\hslash	ſ	\smallint

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∇	\nabla	
Ω	\mho	
	\square	
	\Box	

- ♦ \lozenge
- √ \surd
- √ \checkmark
- # \sharp
- \flat
- / \prime \backprime
- + \mapstochar

- \ \backslash \ \diagdown
- / \diagup
- \blacksquare
- ♦ \Diamond
- ▲ \blacktriangle
- ▼ \blacktriangledown
- ♦ \blacklozenge
- \heartsuit \heartsuit
 - ♦ \diamondsuit
- ♠ \spadesuit
 ♣ \clubsuit
- * \star
- ★ \bigstar
- R \circledR
- ⟨S⟩ \circledS

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ABCDEFGHIJKLMN $OPQRSTUVWXYZ$ $abcdefghijklmnopqrstuvwxyz$ 1234567890	
ABCDEFGHIJKLMN OPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890	
ABCDEFGHIJKLMN OPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz 1234567890	

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Mathematical Alphabets III

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ABCDEFGHIJALMN OPQRSTUVWXYZ abcdefghijklmnopqrstuvwryz 1234567890	
ABCDEFGHIJKLMN $OPQRSTUVWXYZ$ $abcdefghijklmnopqrstuvwxyz$	
$1234567890 \ lphaeta\pi heta\Phi\Psi\Omega\dots$	

Mathematical Alphabets IV

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ABCDEFGHIJKLMN OPQRSTUVWXY£ (Include \usepackage{mathrsfs} before \begin{document})	
ABCDEFGHIJKLMN OPQRSTUVWXYZ	
ABCDEFGHIJKLMN OPQRSTUVWXYZ	

Brackets These are variable sized

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Chemarrow

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                    \rceil
\lfloor
                    \rfloor
\lgroup
                    \rgroup
                    \rvert
                    \rVert
\lmoustache
                    \rmoustache
\arrowvert
                    \Arrowvert
\backslash
                    \bracevert
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Brackets - Math Accents

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L	\llcorner	_	\lrcorner
	,		\
1	\uparrow	1	\Uparrow
1	\ .	- 11	\ D
↓ ↓	\downarrow	₩	\Downarrow
1	\	♠	\ IIl
\downarrow	\updownarrow	↓	\Updownarrow

\tilde{a}	\tilde{a}	ă	\breve{a}
\hat{a}	\hat{a}	\dot{a}	\dot{a}
\check{a}	\check{a}	ä	\ddot{a}
\vec{a}	\vec{a}	ä	\dddot{a}
\bar{a}	\bar{a}	·ä·	\ddddot{a}
\acute{a}	\acute{a}	\mathring{a}	\mathring{a}
\grave{a}	\grave{a}		

Dots

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• • •	\ldots	lower dots
	\cdots	center dots
٠٠.	\ddots	diagonal dots
:	\vdots	vertical dots
	\dotfill	fill with dots
	\dots	lower or center
• • •	\dotsm	multiplication
	\dotsi	dots for integrals
	\dotsb	dots for binary op.
	\dotsc	dots after commas
	\dotso	other dots
	\ldotp	
	\cdotp	
:	\colon	

Variable Size Constructions

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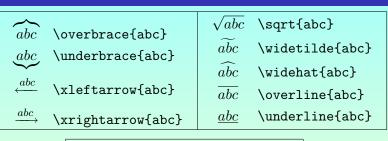
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Textcomp I

Include \usepackage{textcomp} before \begin{document}

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Emre	¢	\textcent	¢	\textcentoldstyle
	€	\texteuro	C	\textcolonmonetary
Introduction	¥	\textyen	↓ ↓	\textdownarrow
TEXT	£	\textsterling	\rightarrow	\textrightarrow
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Emre Sermutli

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Emre Sermutlı

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Emre Sermutli

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