

# AMST<sub>EX</sub> Reference Card

(See the T<sub>E</sub>X Reference Card for further commands)

## Formatting

<code>\pagewidth{&lt;dimen&gt;}</code>	set page width
<code>\pageheight{&lt;dimen&gt;}</code>	set page height
<code>\hcorrection{&lt;dimen&gt;}</code>	move page right
<code>\vcorrection{&lt;dimen&gt;}</code>	move page down
<code>\flushpar</code>	start a paragraph with no indentation
<code>\boxed#1</code>	boxed formula
<code>\NoBlackBoxes</code>	omit overfull hbox markers
<code>\comment ... \endcomment</code>	unprinted comments
<code>\pageno#1</code>	set page number
<code>\nopagenumbers</code>	turn off page numbering if not using <code>amspt</code> style

## Fonts

### Text Fonts

<code>\rm</code>	roman
<code>\it</code>	italic
<code>\bf</code>	boldface
<code>\sl</code>	slant
<code>\smc</code>	small capitals

### Math Mode Fonts

<code>\bold#1</code>	bold letter
<code>\loadbold</code>	load bold math symbols
<code>\boldkey#1</code>	bold keyboard symbol
<code>\boldsymbol#1</code>	bold math symbol (e.g. <code>\alpha</code> )
<code>\Cal#1</code>	caligraphic (script) upper case
<code>\frak#1</code>	German Fraktur
<code>\goth#1</code>	German Fraktur (same as <code>\frak</code> )
<code>\Bbb#1</code>	blackboard bold
<code>\rom#1</code>	Roman

### Loading Fonts & Symbols (if not using `amspt` style)

<code>\loadmsam</code>	load <code>msam</code> symbol font
<code>\loadmsbm</code>	load <code>msbm</code> symbol font
<code>\UseAMSsymbols</code>	define all symbols from <code>msam</code> , <code>msbm</code> fonts
<code>\newsymbol</code>	define a particular symbol

### Changing Font Sizes

<code>\tenpoint</code>	use 10 point fonts
<code>\eightpoint</code>	use 8 point fonts
<code>\dsize</code>	use display size
<code>\tsize</code>	use text size
<code>\ssize</code>	use subscript size
<code>\sssize</code>	use subsubscript size

## Macro Definitions

<code>\define\cs{...}</code>	define a control sequence
<code>\redefine\cs{...}</code>	redefine a control sequence
<code>\predefine\newcs{\oldcs}</code>	assign new name to a control seq
<code>\operatorname#1</code>	new operator name
<code>\operatornamewithlimits#1</code>	new operator name with limits
<code>\newsymbol</code>	new symbol from <code>msam</code> , <code>msbm</code> fonts

## Footnotes and Insertions

<code>\footnote#1</code>	footnote
<code>\footnote"*#1</code>	footnote with specified marker
<code>\topinsert ... \endinsert</code>	insert at top of page
<code>\midinsert ... \endinsert</code>	insert in middle of page
<code>\topcaption#1 ... \endcaption</code>	caption at top of insert
<code>\botcaption#1 ... \endcaption</code>	caption at bottom of insert
<code>\vspace{&lt;dimen&gt;}</code>	leave vertical space in an insert

## Hyphenation

<code>\showhyphens#1</code>	show allowable hyphens
<code>\-</code>	discretionary hyphen
<code>\hyphenation#1</code>	add words to hyphenation list

## Fractions and Such

<code>\frac#1#2</code>	fraction
<code>\dfrac#1#2</code>	display size fraction
<code>\tfrac#1#2</code>	text size fraction
<code>\fracwithdelims()#1#2</code>	fraction with paren. delimiters
<code>\binom#1#2</code>	binomial coefficient
<code>\dbinom#1#2</code>	display size binomial coefficient
<code>\tbinom#1#2</code>	text size binomial coefficient
<code>\underset#1\to#2</code>	typeset #1 under #2
<code>\overset#1\to#2</code>	typeset #1 over #2
<code>\overbrace#1^#2</code>	overbrace with label above
<code>\underbrace#1_#2</code>	underbrace with label below
<code>\sideset^#1\and^#2\to\bigop</code>	superscripts on side of operator
<code>\cfrac ... \endcfrac</code>	continued fraction
<code>\lrcfrac ... \endlrcfrac</code>	continued fraction flush left
<code>\rccfrac ... \endrcfrac</code>	continued fraction flush right

## Arrows & Commutative Diagrams

<code>@&gt;#1&gt;#2&gt;</code>	right arrow with labels
<code>@&lt;#1&lt;#2&lt;</code>	left arrow with labels
<code>\CD ... \endCD</code>	commutative diagram (don't use <code>&amp;'s</code> )
<code>@V#1V#2V</code>	down arrow with labels
<code>@A#1A#2A</code>	up arrow with labels
<code>@=</code>	long horizontal = sign
<code>@ </code>	long vertical equal sign
<code>@.</code>	leave out an arrow
<code>\pretend#1\haswidth#2</code>	make arrows longer

## Accents

Type	Example	In Math	In Text
hat	$\hat{a}$	<code>\hat</code>	<code>\^</code>
expanding hat	$\widehat{abc}$	<code>\widehat</code>	none
check	$\check{a}$	<code>\check</code>	<code>\v</code>
tilde	$\tilde{a}$	<code>\tilde</code>	<code>\~</code>
expanding tilde	$\widetilde{abc}$	<code>\widetilde</code>	none
acute	$\acute{a}$	<code>\acute</code>	<code>\'</code>
grave	$\grave{a}$	<code>\grave</code>	<code>\`</code>
dot	$\dot{a}$	<code>\dot</code>	<code>\D</code>
double dot	$\ddot{a}$	<code>\ddot</code>	<code>\"</code>
breve	$\breve{a}$	<code>\breve</code>	<code>\u</code>
bar	$\bar{a}$	<code>\bar</code>	<code>\B</code>
vector	$\vec{a}$	<code>\vec</code>	none
cedilla	$\c{c}$	none	<code>\c</code>

## Dimensions

Dimensions are specified in points (pt).  
1 pc = 12 pt  
1 in = 25.4 pt

## Spacing and

<code>\linebreak</code>
<code>\newline</code>
<code>\mathbreak</code>
<code>\allowmathbreak</code>
<code>\-</code>
<code>\.</code>
<code>\,</code> or <code>\thinspace</code>
<code>\medspace</code>
<code>\;</code> or <code>\thickspace</code>
<code>!</code> or <code>\negthinspace</code>
<code>\negmedspace</code>
<code>\negthickspace</code>
<code>\quad</code>
<code>\qquad</code>
<code>%</code>
<code>\phantom#1</code>
<code>\hphantom#1</code>
<code>\vphantom#1</code>
<code>\smash#1</code>
<code>\topsmash#1</code>
<code>\botsmash#1</code>
<code>\mathstrut</code>
<code>\smallpagebreak</code>
<code>\medpagebreak</code>
<code>\bigpagebreak</code>
<code>\pagebreak</code>
<code>\nopagebreak</code>
<code>\newpage</code>

<code>\hdots</code>
<code>\vdots</code>
<code>\ddots</code>
<code>\dots</code>
<code>\ldots</code>
<code>\cdots</code>

## Miscellaneous

<code>\bmod#1</code>
<code>\pmod#1</code>
<code>\mod#1</code>
<code>\pod#1</code>
<code>\sqrt#1</code>
<code>\root#1\of#2</code>
<code>\uproot{&lt;num&gt;}</code>
<code>\leftroot{&lt;num&gt;}</code>
<code>\iiint</code>
<code>\iiint</code>
<code>\idotsint</code>

## AMS Preprint Style

```

\input amstex
\documentstyle{amsppt}
  (Preamble Commands)
\topmatter
  (Top Matter Commands)
\endtopmatter
\document
  (Body of Document)
\enddocument

Preamble Commands
  \TagsOnLeft (default) or \TagsOnRight
  \TagsAsText (default) or \TagsAsMath
  \NoPageNumbers
  \NoRunningHeads
  \Monograph
  \define

Top Matter Commands
  \title ... \endtitle
  \author ... \endauthor
  \affil ... \endaffil
  \address ... \endaddress
  \curraddr ... \endcurraddr
  \email ... \endemail
  \date ... \enddate
  \dedicatory ... \endeddicatory
  \thanks ... \endthanks
  \translator ... \endtranslator
  \keywords ... \endkeywords
  \subjclass ... \endsubjclass
  \abstract ... \endabstract
  \toc ... \endtoc (Table of Contents)
  \leftheadtext#1 (set left headline text)
  \righthadtext#1 (set right headline text)

Body of Paper Commands
  \specialhead ... \endspecialhead
  \head ... \endhead
  \subhead ... \endsubhead
  \subsubhead ... \endsubsubhead
  \proclaim#1 ... \endproclaim
  \rom#1 (Roman font in proclaim)
  \demo#1 ... \enddemo (proof)
  \qed (end of proof marker)
  \roster ... \endroster (roster of listed items)
    \item (start a new item in a roster)
    \item[(number)] (specify roster item number)
    \item*" (item with specified marker)
    \therosteritem#1 (refer to specified roster item)
    \widestnumber\item#1 (set width for roster labels)
  \nofrills (turn off automatic font, spacing, punctuation)
  \usualspace (usual space following punctuation)
  \definition#1 ... \enddefinition
  \example#1 ... \endexample
  \remark#1 ... \endremark
  \block ... \endblock (indented text)
  \cite (cite a reference)

```

## AMS Preprint Style — References

```

\Refs ... \endRefs      list of references
\refstyle#1             specify style A, B, or C
                        A = initials, B = name, C = number
\ref ... \endref        individual reference
\no or \key             number or key for reference
  \widestnumber\no#1   or \widestnumber\key#1
\by                     author
  \bysame               same as previous author
\paper                  name of paper
\vol                    volume
\yr                     year of publication
\jour                   journal
\page or \pages         page(s)
\toappear               to appear
\inbook                 article in a book
\moreref                additional reference information
\paperinfo              extra information after paper title
\procinfo               information about proceedings
\issue                  issue number
\lang                   language
\transl                 information about translated version
\book                   book
\ed or \eds             editor(s)
\publ                   publisher
\publaddr               publisher address
\bookinfo               extra information after book title
\finalinfo              extra information for end
\miscnote               same as \finalinfo, in parens.

```

## Overlines and Underlines

```

\underline#1           underline
\overline#1            overline
\overarrow#1           over right arrow
\underarrow#1          under right arrow
\overleftarrow#1       over left arrow
\underleftarrow#1      under left arrow
\overleftrightarrow#1  over left-right arrow

```

## Delimiters

```

[ \lbrack or \l[      { \lbrace or \{   < \langle
] \rbrack or \r]      } \rbrace or \}   > \rangle
| \vert or \lvert     | \lfloor         | \lceil
|| \Vert or \lVert    | \rfloor         | \rceil
↑ \uparrow            ↑ \Uparrow         ↓ \updownarrow
↓ \downarrow          ↓ \Downarrow       ↓ \Updownarrow
[[ [![[               (( \!(           << \langle\!\rangle
]] ]\!]               )) \!)           >> \rangle\!\rangle

\left#1 \right#1      expanding delimiters
\left. \right.         empty delimiters
\bigl#1 \bigr#1       big delimiters
\Bigl#1 \Bigr#1       bigger delimiters
\biggl#1 \biggr#1     even bigger delimiters

```

## Non-Italic Function Names

```

\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

```

## Alignments

```

\\
&
\align ... \endalign
\alignat#1 ... \endalignat#1
\axialignat#1 ... \endaxialignat#1
\aligned ... \endaligned
\alignedat#1 ... \endalignedat#1
\topaligned ... \endtopaligned
\botaligned ... \endbotaligned
\gather ... \endgather
\gathered ... \endgathered
\multline ... \endmultline
\shoveleft#1
\shoveright#1
\multlinegap{<dimen>}
\cases ... \endcases
\split ... \endsplit
\Sb ... \endSb
\Sp ... \endSp
\text#1
\intertext#1
\foldedtext#1
\topfoldedtext
\botfoldedtext
\foldedwidth{<dimen>}
\allowdisplaybreak
\allowdisplaybreak*
\displaybreak
\vspace{<dimen>}
\spreadlines{<dimen>}
\spreadmatrixlin
\jot
\tag#1
\thetag#1
\tag"*"

Matrices
\matrix ... \endmatrix
\pmatrix ... \endpmatrix
\bmatrix ... \endbmatrix
\vmatrix ... \endvmatrix
\smallmatrix ... \endsmallmatrix
\format
  \c \l \r

```

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