LaTeX Symbol Search

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2014403073

11 June 2015

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PROBLEM DESCRIPTION

Why use LaTeX?

- Platform independent
- Academics
  - Mathematics
  - Non-latin alphabets
- Markup: separation of content and style
- Free
- Automatic referencing
- Beautiful

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Problems with LaTeX

- Steep learning curve
- Complicated workflow
- Many commands
  - Packages, sectioning, referencing etc.
  - Symbol commands

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

Table 1: Greek Letters

$\preceq$	\leq	$\succeq$	\geq	$\equiv$	\equiv	$\models$	\models
$\prec$	\prec	$\succ$	\succ	$\sim$	\sim	$\perp$	\perp
$\preceq$	\preceq	$\succeq$	\succeq	$\simeq$	\simeq	$\mid$	\mid
$\ll$	\ll	$\gg$	\gg	$\asymp$	\asymp	$\parallel$	\parallel
$\subset$	\subset	$\supset$	\supset	$\approx$	\approx	$\bowtie$	\bowtie
$\subseteq$	\subseteq	$\supseteq$	\supseteq	$\cong$	\cong	$\Join$	\Join[b]
$\sqsubset$	\sqsubset[b]	$\sqsupset$	\sqsupset[b]	$\neq$	\neq	$\smile$	\smile
$\sqsubseteq$	\sqsubseteq	$\sqsupseteq$	\sqsupseteq	$\doteq$	\doteq	$\frown$	\frown
$\in$	\in	$\ni$	\ni	$\propto$	\propto	$=$	=
$\vdash$	\vdash	$\dashv$	\dashv	$<$	<	$>$	>
:	:						

DATA SOURCES

Wikipedia: list of mathematical symbols

DATA SOURCES

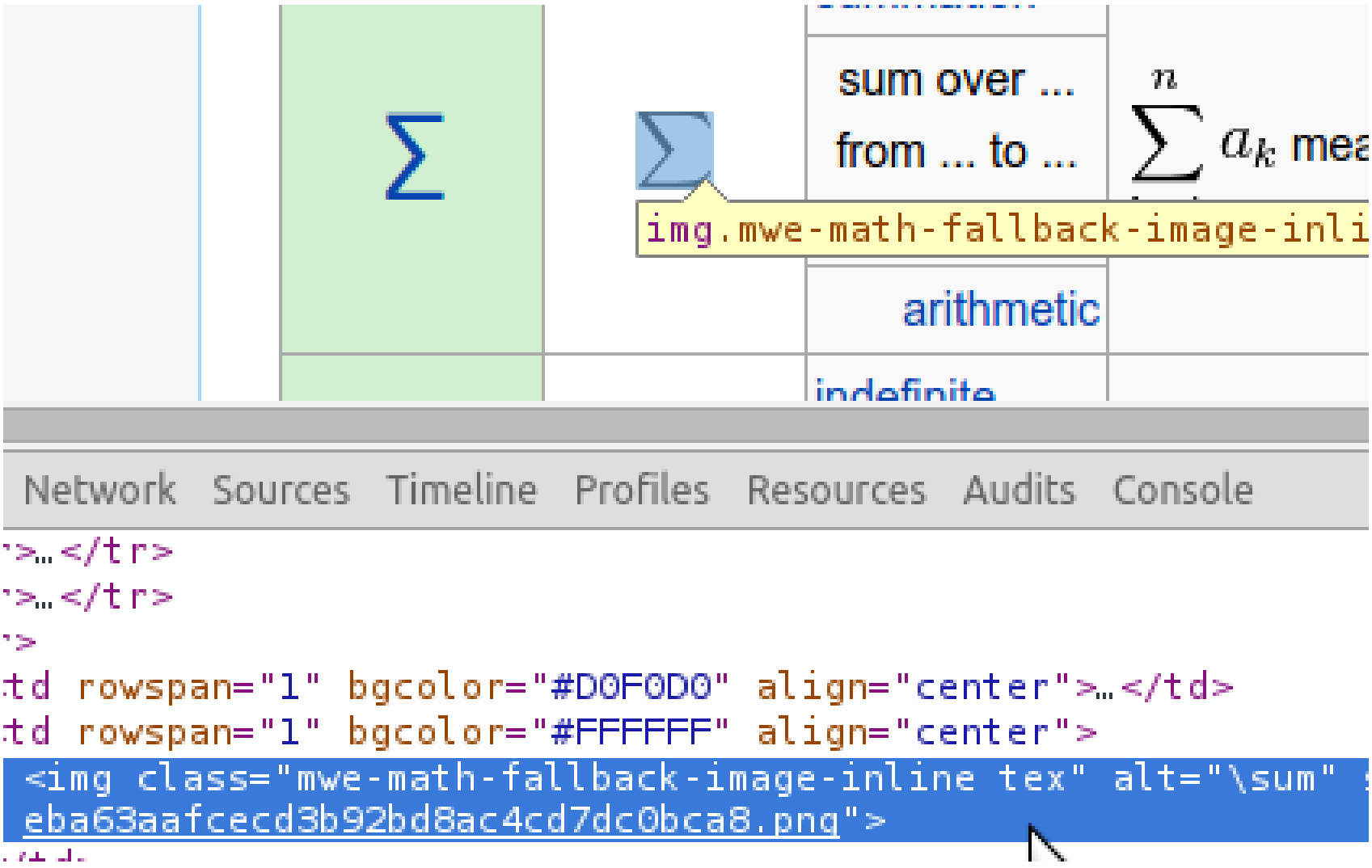
Wikipedia: list of mathematical symbols

Basic symbols [edit]

Symbol in HTML	Symbol in TeX	Name / Read as / Category	Explanation	Examples
+	+	addition / plus; add / arithmetic	4 + 6 means the sum of 4 and 6.	2 + 7 = 9
		disjoint union / the disjoint union of ... and ... / set theory	$A_1 + A_2$ means the disjoint union of sets A_1 and A_2.	$A_1 = \{3, 4, 5, 6\} \wedge A_2 = \{7, 8, 9, 10\} \Rightarrow$ $A_1 + A_2 = \{(3,1), (4,1), (5,1), (6,1), (7,2), (8,2), (9,2), (10,2)\}$
−	−	subtraction / minus; take; subtract / arithmetic	9 − 4 means the subtraction of 4 from 9.	8 − 3 = 5
		negative sign / negative; minus; the opposite of / arithmetic	−3 means the negative of the number 3.	−(−5) = 5

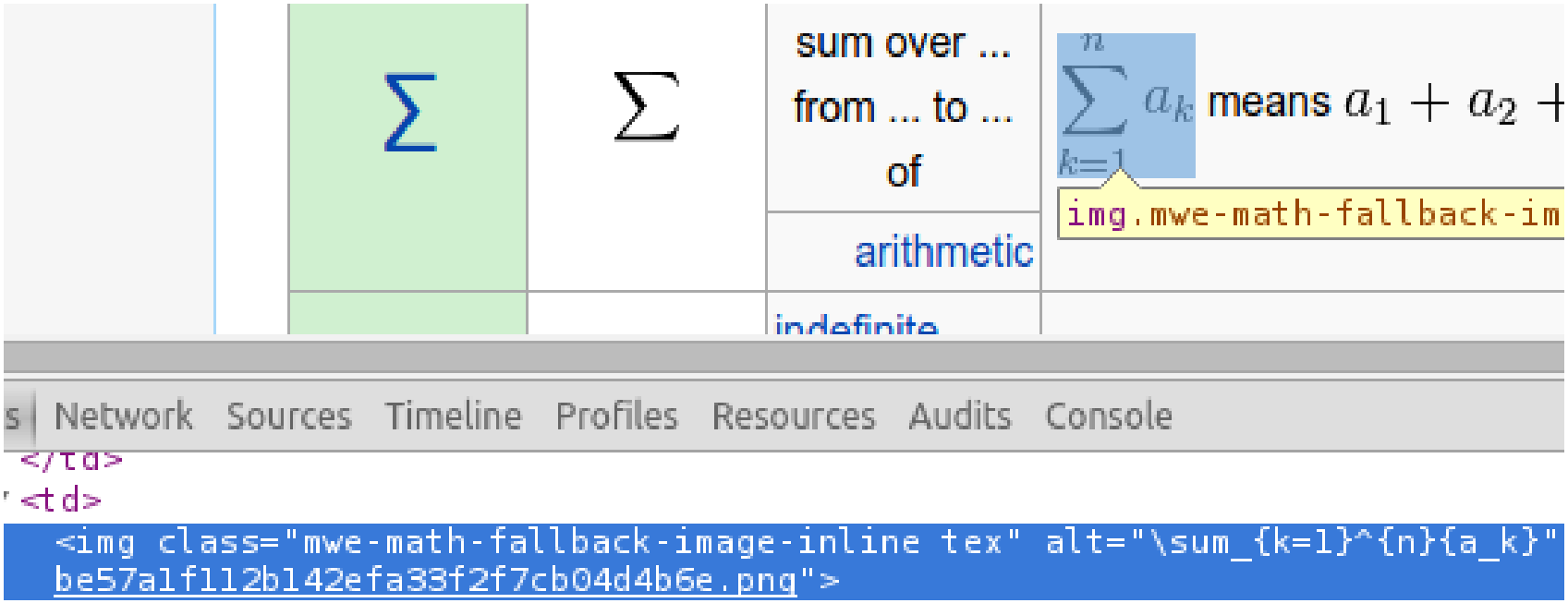
DATA SOURCES

Symbol command in `< img alt="\command" >`



DATA SOURCES

Equation command in `< img alt="\command" >`



DATA SOURCES

- Wikipedia list is not comprehensive

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- Wikipedia list is not comprehensive
- Add Wikibooks

List of Mathematical Symbols [edit]

All the pre-defined mathematical symbols from the \TeX\ package are listed below. More symbols are available from extra packages.

Relation Symbols

Symbol	Script	Symbol	Script	Symbol	Script	Symbol	Script	Symbol	Script
$<$	`<`	$>$	`>`	$=$	`=`	$\parallel$	`\parallel`	$\nparallel$	`\nparallel`
$\leq$	`\leq`	$\geq$	`\geq`	$\doteq$	`\doteq`	$\asymp$	`\asymp`	$\bowtie$	`\bowtie`
$\ll$	`\ll`	$\gg$	`\gg`	$\equiv$	`\equiv`	$\vdash$	`\vdash`	$\dashv$	`\dashv`
$\subset$	`\subset`	$\supset$	`\supset`	$\approx$	`\approx`	$\in$	`\in`	$\ni$	`\ni`
$\subseteq$	`\subseteq`	$\supseteq$	`\supseteq`	$\cong$	`\cong`	$\smile$	`\smile`	$\frown$	`\frown`
$\nsubseteq$	`\nsubseteq`	$\nsupseteq$	`\nsupseteq`	$\simeq$	`\simeq`	$\models$	`\models`	$\notin$	`\notin`
$\sqsubset$	`\sqsubset`	$\sqsupset$	`\sqsupset`	$\sim$	`\sim`	$\perp$	`\perp`	$\mid$	`\mid`
$\sqsubseteq$	`\sqsubseteq`	$\sqsupseteq$	`\sqsupseteq`	$\propto$	`\propto`	$\prec$	`\prec`	$\succ$	`\succ`
$\preceq$	`\preceq`	$\succeq$	`\succeq`	$\neq$	`\neq`	$\sphericalangle$	`\sphericalangle`	$\measuredangle$	`\measuredangle`

Binary Operations

Symbol	Script	Symbol	Script	Symbol	Script	Symbol	Script
$\pm$	`\pm`	$\cap$	`\cap`	$\diamond$	`\diamond`	$\oplus$	`\oplus`
$\mp$	`\mp`	$\cup$	`\cup`	$\triangle$	`\bigtriangleup`	$\ominus$	`\ominus`

DATA SOURCES

- Wikibooks
  - Only symbol commands
  - No description or examples
  - Restrict to pre-defined symbols in the TEXpackage

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INDEXING

WIKIPEDIA

Each row is treated as a document

Symbol in TeX	TeX Command	Name / Read as / Category	Explanation	Examples
×	\times	multiplication / times; multiplied by / arithmetic	3 × 4 or 3 · 4 means the multiplication of 3 by 4.	7 · 8 = 56
·	\cdot	dot product / dot / linear algebra	**u** · **v** means the dot product of vectors **u** and **v**	(1,2,5) · (3,4,−1) = 6
		placeholder / (silent) / functional analysis	A · means a placeholder for an argument of a function. Indicates the functional nature of an expression without assigning a specific symbol for an argument.	‖ · ‖

Indexed fields

- Command
- Keyword
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ℵ	\aleph

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QUERYING

Supports fuzzy search (maximum edit distance of 3)

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LaTeX Symbol Search

esplon Search

Mouse over equations to display their TeX commands

Symbol in TeX	TeX Command	Name / Read as / Category	Explanation	Examples
E, ϵ and ε	`E`, `\epsilon` and `\varepsilon`			

QUERYING

Can search content

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Can search content

LaTeX Symbol Search

the set of all real numbers | Search

Mouse over equations to display their TeX commands

Symbol in TeX	TeX Command	Name / Read as / Category	Explanation
$\mathbb{R}$	`\mathbb{R}`	real numbers	$\mathbb{R}$ means the set of real numbers.
$\mathbf{R}$	`\mathbf{R}`	R; the (set of) real numbers; the reals	
		numbers	

RANKING

- Okapi BM25F
  - Probabilistic relevance model
  - Document generative model
    - $\Pr(Q, D \mid R) = \Pr(D \mid Q, R) \Pr(Q \mid R)$
    - "probability of document being generated by query"

$$\text{score}(D, Q) = \sum_{i=1}^{n} \text{IDF}(q_i) \cdot \frac{f(q_i, D) \cdot (k_1 + 1)}{f(q_i, D) + k_1 \cdot (1 - b + b \cdot \frac{|D|}{\text{avgdl}})}$$

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  - Exact match: commands and keywords
  - Or match: commands and keywords
  - Fuzzy: commands
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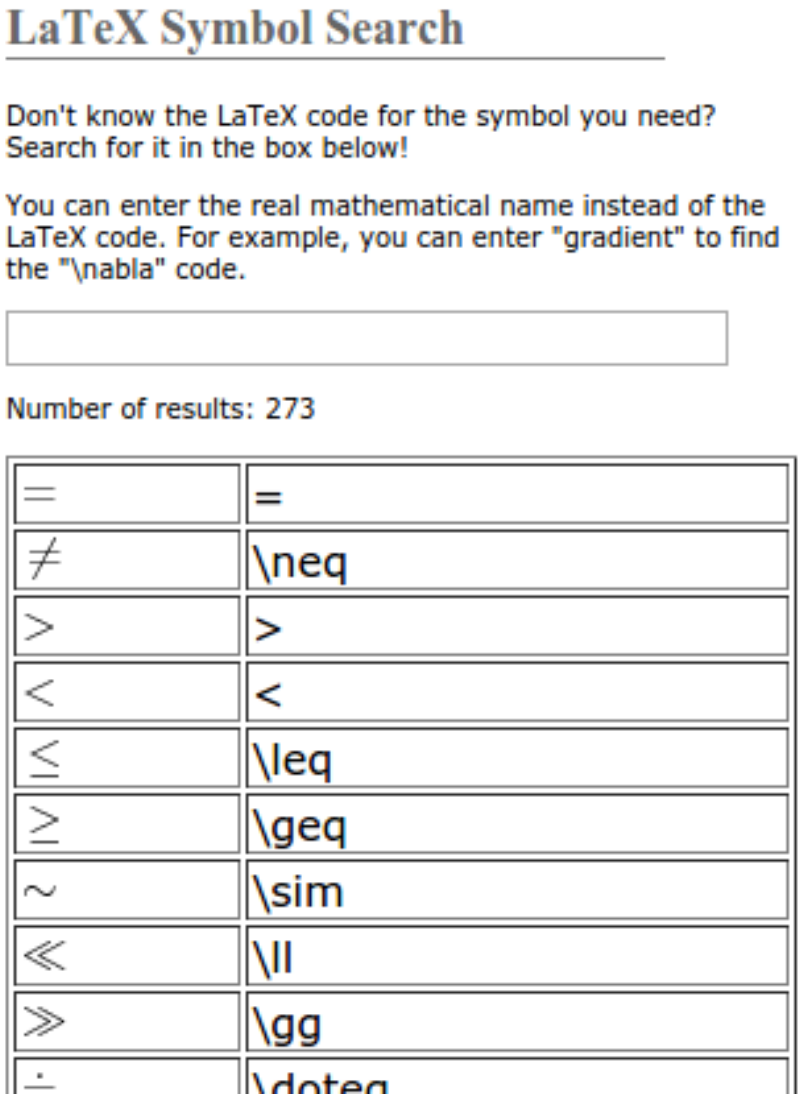

LaTeX Symbol Search

Don't know the LaTeX code for the symbol you need? Search for it in the box below!

You can enter the real mathematical name instead of the LaTeX code. For example, you can enter "gradient" to find the "\nabla" code.

Number of results: 273

=	=
≠	\neq
>	>
<	<
≤	\leq
≥	\geq
∼	\sim
≪	\ll
≫	\gg
≐	\doteq

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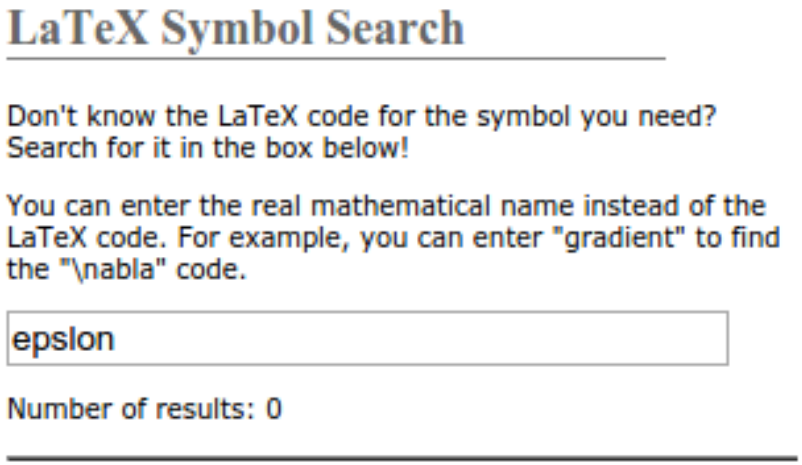

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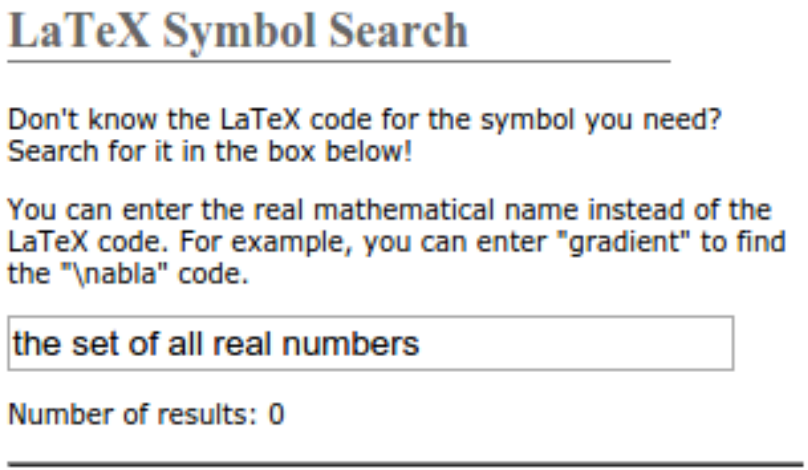

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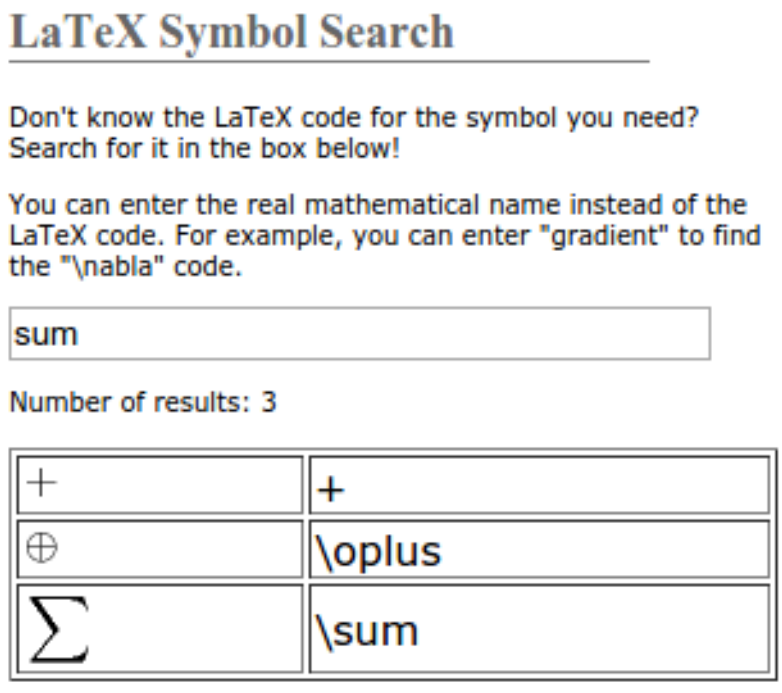

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sum

Number of results: 3

+	+
⊕	\oplus
∑	\sum

TOOLS

Pure Python

- BeautifulSoup: HTML parser
- Whoosh: search engine
- Flask: Web framework

Thank you!