University of East Anglia

STUDENT SUPPORT
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Factsheet: Common Mathematical Symbols

The following table is a list of commonly used mathematical symbols. There may be symbols which are not listed, also the symbols listed may have different meanings in certain disciplines.

Symbol	Meaning
$+$	plus/add
$-$	minus/subtract; relative complement
$\div$	divide
$/$	divide
$\times$	multiply; vector product; Cartesian product
$\cdot$	multiply; scalar/dot product
$=$	is equal to
$\equiv$	is identically equal to; defined as; logical equivalence; congruent
$\neq$	does not equal
$\approx$	is approximately equal to
$>$	is greater than
$\geq$	is greater than or equal to
$\gg$	is much greater than
$<$	is less than
$\leq$	is less than or equal to
$\ll$	is much less than
$\pm$	plus or minus; error margin

$\mp$	minus or plus
$\mathbb{C}$	set of complex numbers
$\mathbb{Z}$	set of integers
$\mathbb{N}$	set of natural numbers
$\mathbb{Q}$	set of rational numbers
$\mathbb{R}$	set of real numbers
$:$	ratio; such that
$::$	as
$\therefore$	therefore
$\because$	because
$\forall$	for all
$\exists$	there exists
$\{\,\}$	set
$<\;>$	mean
$\sqrt{}$	(square) root of
$*$	operation (usually product)
$\angle$	angle
$\parallel$	is parallel to; vector magnitude; modulus; cardinality
$\perp$	perpendicular
$\cap$	intersection
$\cup$	union
$\mid$	given that; divides
$\nmid$	does not divide
$\subset$	is a proper subset of

$\not\subset$	is not a proper subset
$\subseteq$	contains
$\in$	belongs to
$\notin$	does not belong to
$\varnothing$	empty set
$\aleph$	cardinality
$\oplus$	symmetric difference
$\circ$	composition of
Δ	finite difference or increment; symmetric difference
%	per cent
‰	per thousand
'	first derivative
"	second derivative
∂	partial derivative
°	degrees (angle)
~	difference
$\wedge$	logical and; to the power of; unit vector
$\vee$	logical or
$\neg$	logical negation/not
$\vdash$	argument consequence
$\Leftrightarrow$	is equivalent to
$\Rightarrow$	implies
!	factorial
∞	infinity

∫	integral
→	maps into; approaches the limit; implies/only if
↔	if and only if
Σ	sum of
Π	product of
∝	is proportional to
□	QED, it is proved
∇	vector differential operator, del, nabla
∮	contour integral

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