## Definitions

Term	Notation Example(s)	We say in English
sequence	$x_1, \ldots, x_n$	A sequence $x_1$ to $x_n$
summation	$x_1, \dots, x_n$ $\sum_{i=1}^n x_i \text{ or } \sum_{i=1}^n x_i$	The sum of the terms of the sequence $x_1$ to $x_n$
all reals	$\mathbb{R}$	The (set of all) real numbers (numbers on the number line)
all integers	$\mathbb{Z}$	The (set of all) integers (whole numbers including negatives, zero, and positives)
all positive integers	$\mathbb{Z}^+$	The (set of all) strictly positive integers
all natural numbers	N	The (set of all) natural numbers. <b>Note</b> : we use the convention that 0 is a natural number.
piecewise rule definition	$f(x) = \begin{cases} x & \text{if } x \ge 0 \\ -x & \text{if } x < 0 \end{cases}$	Define $f$ of $x$ to be $x$ when $x$ is nonnegative and to be $-x$ when $x$ is negative
function application	f(7) $f(z)$ $f(g(z))$	f of 7 <b>or</b> $f$ applied to 7 <b>or</b> the image of 7 under $f$ $f$ of $z$ <b>or</b> $f$ applied to $z$ <b>or</b> the image of $z$ under $f$ $f$ of $g$ of $z$ <b>or</b> $f$ applied to the result of $g$ applied to $z$
absolute value square root	$\begin{array}{c}  -3  \\ \sqrt{9} \end{array}$	The absolute value of $-3$ The non-negative square root of 9

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absolute value	-3  	The absolute value of $-3$
square root	<b>√</b> 9	The non-negative square root of 9