Set Symbols

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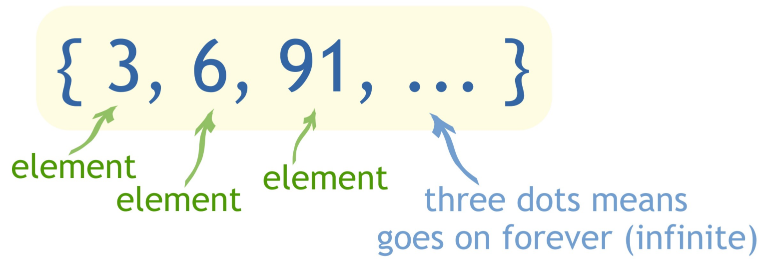
A set is a collection of things, usually numbers. We can list each element (or
") of a set inside curly brackets like this:



("element" or "member" mean the same thing)

Common Symbols Used in Set Theory

Symbols save time and space when writing. Here are the most common set symbols

In the examples C = {1, 2, 3, 4} and D = {3, 4, 5}

Symbol	Meaning	Example
{ }	Set: a collection of elements	{1, 2, 3, 4}
A ∪ B	Union: in A or B (or both)	C ∪ D = {1, 2, 3, 4, 5}
A ∩ B	Intersection: in both A and B	C ∩ D = {3, 4}
A ⊆ B	Subset: every element of A is in B.	{3, 4, 5} ⊆ D
A ⊂ B	Proper Subset: every element of A is in B, but B has more elements.	{3, 5} ⊂ D
A ⊄ B	Not a Subset: A is not a subset of B	{1, 6} ⊄ C
A ⊇ B	Superset: A has same elements as B, or more	{1, 2, 3} ⊇ {1, 2, 3}
A ⊃ B	Proper Superset: A has B's elements and more	{1, 2, 3, 4} ⊃ {1, 2, 3}
A ⊅ B	Not a Superset: A is not a superset of B	{1, 2, 6} ⊅ {1, 9}
A^C	Complement: elements not in A	D^C = {1, 2, 6, 7} When U = {1, 2, 3, 4, 5, 6, 7}
A − B	Difference: in A but not in B	{1, 2, 3, 4} − {3, 4} = {1, 2}

$a \in A$	Element of: *a* is in A	$3 \in \{1, 2, 3, 4\}$
$b \notin A$	Not element of: *b* is not in A	$6 \notin \{1, 2, 3, 4\}$
Ø	Empty set = {}	$\{1, 2\} \cap \{3, 4\} = \varnothing$
$\mathbb{U}$	Universal Set: set of all possible values (in the area of interest)	
P(A)	Power Set: all subsets of A	P({1, 2}) = { {}, {1}, {2}, {1, 2} }
A = B	Equality: both sets have the same members	{3, 4, 5} = {5, 3, 4}
A×B	Cartesian Product (set of ordered pairs from A and B)	{1, 2} × {3, 4} = {(1, 3), (1, 4), (2, 3), (2, 4)}
|A|	Cardinality: the number of elements of set A	|{3, 4}| = 2
|	Such that	$\{ n \mid n > 0 \} = \{1, 2, 3,\ldots\}$
:	Such that	$\{ n : n > 0 \} = \{1, 2, 3,\ldots\}$
∀	For All	$\forall x>1, x^2>x$ *For all x greater than 1 x-squared is greater than x*
∃	There Exists	$\exists\ x \mid x^2>x$ *There exists x such that x-squared is greater than x*
∴	Therefore	a=b ∴ b=a
$\mathbb{N}$	Natural Numbers	{1, 2, 3,...} or {0, 1, 2, 3,...}
$\mathbb{Z}$	Integers	{..., −3, −2, −1, 0, 1, 2, 3, ...}
$\mathbb{Q}$	Rational Numbers	
$\mathbb{A}$	Algebraic Numbers	
$\mathbb{R}$	Real Numbers	
$\mathbb{I}$	Imaginary Numbers	3**i**
$\mathbb{C}$	Complex Numbers	2 + 5**i**