Year 12 Definitions

Dr Oliver

Revision Part 2

What is the difference between a *sequence* and a *series*?

Sequences and series

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A *series* is what you get when you add up all the terms of a sequence; the addition, and also the resulting value, are called the "sum" or the "summation". For instance, "$1, 2, 3, 4$" is a sequence, with terms "1", "2", "3", and "4"; the corresponding series is the sum "$1 + 2 + 3 + 4$", and the value of the series is 10.

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Asymptotes

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An *asymptote* occurs when a given curve approaches a line arbitrarily closely. An asymptote is a horizontal, vertical, or oblique (or slanted) line that a graph approaches but never touches.

The symbol ∈: what does it mean?

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The $\in$ indicates set membership and means "is an element of" so that the statement $x \in A$ means that "x is an element of the set A."

In other words, x is one of the objects in the collection of (possibly many) objects in the set A.

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If A is a *proper subset* of B (i.e., a subset other than the set itself), this is written $A \subset B$.

Coefficients

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A *coefficient* is a multiplicative factor in some term of a polynomial, a series, or any expression; it is usually a number, but may be any expression.

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A *formula* is a concise mathematical way of expressing information symbolically.

Terms

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A *term* is either a single number or variable, or the product of several numbers or variables. Terms are separated by a '+' or '−' sign in an overall expression.

For example, in

$$5 - 6y + 2abc,$$

5, $6y$, and $2abc$ are three separate terms.