Year 12 Definitions

Dr Oliver

Revision Part 2

Sequences and series

What is the difference between a sequence and a series?

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A sequence (it is sometimes called a progression) is an ordered list of numbers; the numbers in this ordered list are called the "elements" or the "terms" of the sequence.

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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.

What is the quadratic formula?

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What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

the quadratic formula is

$$x = ----$$
.

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

the quadratic formula is

$$x = \frac{-b}{}.$$

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

the quadratic formula is

$$x = \frac{-b \pm}{}$$
.

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

$$x = \frac{-b \pm \sqrt{}}{}.$$



What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

the quadratic formula is

$$x = \frac{-b \pm \sqrt{b^2}}{}.$$

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

the quadratic formula is

$$x = \frac{-b \pm \sqrt{b^2 - b^2}}{-b}.$$

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

$$x = \frac{-b \pm \sqrt{b^2 - 4}}{}.$$



What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

$$x = \frac{-b \pm \sqrt{b^2 - 4a}}{}.$$



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$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2}.$$

What is the quadratic formula?

If

$$ax^2 + bx + c = 0,$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$



Asymptotes

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What is the *asymptote*?

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Asymptotes

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What is the *asymptote*?

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 symbol ∈: what does it mean?

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.



The symbol \subseteq : what does it mean?

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The symbol \subseteq : what does it mean?

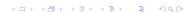
The \subseteq is a portion of a set. A is a *subset* of B (written $A \subseteq B$) if and only if every member of A is a member of B.



The symbol \subseteq : what does it mean?

The \subseteq is a portion of a set. A is a *subset* of B (written $A \subseteq B$) if and only if every member of A is a member of B.

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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What is a *coefficient*?

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Coefficients

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What is a *coefficient*?

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.

Formulae (or formulas)

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What is a formula?

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What is a formula?

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

Terms

What is a term?

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Terms

What is a term?

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.

