Number and algebra

International Baccalaureate · IB Diploma · Mathematics: Analysis and Approaches · HL · Vocabulary in context

Word	Example
standard form /ˈstændəd fɔːm/	3×10^4 is in **standard form**. 3×10^4
exponent /ekˈspəʊnənt/	The **exponent** moves the binary point.
logarithm /ˈlɒgərɪθəm/	Take the **logarithm** of both sides.
natural logarithm /ˈnætʃərəl ˈlɒgərɪθəm/	The **natural logarithm** ln x uses base e. ln x e
change of base	The **change of base** rule writes $\log_2 7$ as ln 7 ÷ ln 2. $\log_2 7$ ln 7 ÷ ln 2
sequence /ˈsiːkwəns/	A **sequence** places its terms in a particular order.
arithmetic sequence /əˈrɪθmətɪk ˈsiːkwəns/	2, 7, 12, 17 is an **arithmetic sequence**. 2, 7, 12, 17
common difference /ˈkɒmən ˈdɪfrəns/	In the sequence 3, 7, 11, 15, the **common difference** is 4. 3, 7, 11, 15 4
series /ˈsɪəriːz/	A **series** is the sum of its terms.
sigma notation /ˈsɪgmə nəʊˈteɪʃn/	In **sigma notation**, Σ means “add up all the terms”. Σ “add up all the terms”
geometric sequence /ˌdʒiːəʊˈmetrɪk ˈsiːkwəns/	2, 6, 18, 54 is a **geometric sequence**. 2, 6, 18, 54
common ratio /ˈkɒmən ˈreɪʃɪəʊ/	In the sequence 2, 6, 18, 54, the **common ratio** is 3. 2, 6, 18, 54 3
converge /kənˈvɜːdʒ/	The values 1.5, 1.41, 1.414 **converge** to $\sqrt{2}$. 1.5, 1.41, 1.414 $\sqrt{2}$

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compound interest /ˈkɒmpaʊnd ˈɪntrest/	**Compound interest** is paid on the interest too.
depreciation /dɪˌpriːʃɪˈeɪʃn/	**Depreciation** spreads the cost of a machine over the years it is used.
binomial theorem /baɪˈnəʊmɪəl ˈθɪərəm/	The **binomial theorem** expands $(a + b)^n$ quickly. $(a + b)^n$
binomial coefficient /baɪˈnəʊmɪəl ˌkəʊɪˈfɪʃənt/	The **binomial coefficient** ${}^5C_2$ equals 10. ${}^5C_2$ 10
Pascal's triangle	Each number in **Pascal's triangle** is the sum of the two above it.
proof /pruːf/	A **proof** must justify every case covered by its claim.
permutation /ˌpɜːmjuːˈteɪʃn/	In a **permutation**, changing the order changes the arrangement.
combination /ˌkɒmbɪˈneɪʃn/	In a **combination**, the order of chosen items does not matter.
partial fraction /ˈpɑːʃl ˈfrækʃn/	In **partial fraction** form, $1/(x(x + 1))$ is $1/x - 1/(x + 1)$. $1/(x(x + 1))$ $1/x - 1/(x + 1)$。
complex number /ˈkɒmpleks ˈnʌmbə/	The **complex number** $4 + 3j$ has a real part of 4. $4 + 3j$ 4
complex conjugate /ˈkɒmpleks ˈkɒndʒuːgeɪt/	The **complex conjugate** of $3 + 2i$ is $3 - 2i$. $3 + 2i$ $3 - 2i$
Argand diagram /ˈɑːgænd ˈdaɪəgræm/	On an **Argand diagram**, $a + bi$ is the point (a, b). $a + bi$ (a, b)

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modulus /ˈmɒdjʊləs/	The **modulus** of $4 + 3\text{j}$ is 5. $4 + 3\text{j}$ 5
argument /ˈɑːgjuːmənt/	A positive real complex number has **argument** zero.
de Moivre's theorem /də ˈməɪvəz ˈθɪərəm/	**de Moivre's theorem** says $(\cos\theta + \text{i}\sin\theta)^n = \cos \text{n}\theta + \text{i}\sin \text{n}\theta$. $(\cos\theta + \text{i}\sin\theta)^n = \cos \text{n}\theta + \text{i}\sin \text{n}\theta$
proof by induction	**Proof by induction** works like a line of falling dominoes.
proof by contradiction /pruːf baɪ ˌkɒntrəˈdɪkʃn/	A **proof by contradiction** assumes the opposite and shows it leads to something impossible.
counterexample /ˈkaʊntəregzæmpl/	One **counterexample** can overturn a claim about every integer.

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