Number and algebra

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

Word	Example
standard form /'stændəd fɔ:m/	3×10^4 is in **standard form**. 3×10^4
exponent /ek'spəʊnənt/	The **exponent** moves the binary point.
logarithm /'lɒgərɪθəm/	Take the **logarithm** of both sides.
natural logarithm /'nætʃərəl 'lɒgərɪθəm/	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 /'si:kwəns/	A **sequence** places its terms in a particular order.
arithmetic sequence /ə'rɪθmətɪk 'si:kwəns/	2, 7, 12, 17 is an **arithmetic sequence**. 2, 7, 12, 17
common difference /'kɒmən 'dɪfrəns/	In the sequence 3, 7, 11, 15, the **common difference** is 4. 3, 7, 11, 15 4
series /'sɪəri:z/	A **series** is the sum of its terms.
sigma notation /'sɪgmə nəʊ'teɪʃn/	In **sigma notation**, Σ means "add up all the terms". Σ "add up all the terms"
geometric sequence /ˌdʒi:əʊ'metrɪk 'si:kwəns/	2, 6, 18, 54 is a **geometric sequence**. 2, 6, 18, 54
common ratio /'kɒmən 'reɪʃɪəʊ/	In the sequence 2, 6, 18, 54, the **common ratio** is 3. 2, 6, 18, 54 3
converge /kən'vɜ:dʒ/	The values 1.5, 1.41, 1.414 **converge** to √2. 1.5, 1.41, 1.414 √2

exercises.lol exercises.com.cn

Word	Example
compound interest /'kɒmpaʊnd 'ɪntrest/	**Compound interest** is paid on the interest too.
depreciation /dɪˌpri:ʃɪ'eɪʃn/	**Depreciation** spreads the cost of a machine over the years it is used.
binomial theorem /baɪ'nəʊmɪəl 'θɪərəm/	The **binomial theorem** expands $(a + b)^n$ quickly. $(a + b)^n$
binomial coefficient /baɪ'nəʊmɪəl ˌkəʊɪ'fɪʃənt/	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 /pru:f/	A **proof** must justify every case covered by its claim.
permutation /ˌpɜ:mju:'teɪʃn/	In a **permutation**, changing the order changes the arrangement.
combination /ˌkɒmbɪ'neɪʃn/	In a **combination**, the order of chosen items does not matter.
partial fraction /'pɑ:ʃl 'frækʃn/	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 /'kɒmpleks 'nʌmbə/	The **complex number** 4 + 3j has a real part of 4. 4 + 3j 4
complex conjugate /'kɒmpleks 'kɒndʒu:geɪt/	The **complex conjugate** of 3 + 2i is 3 − 2i. 3 + 2i 3 − 2i
Argand diagram /'ɑ:gænd 'daɪəgræm/	On an **Argand diagram**, a + bi is the point (a, b). a + bi (a, b)

Word	Example
modulus /ˈmɒdjʊləs/	The **modulus** of $4 + 3\mathrm{j}$ is 5. $4 + 3\mathrm{j}$ 5
argument /ˈɑːgjuːmənt/	A positive real complex number has **argument** zero.
de Moivre's theorem /də ˈmɔɪvəz ˈθɪərəm/	**de Moivre's theorem** says $(\cos\theta + \mathrm{i}\sin\theta)^n = \cos \mathrm{n}\theta + \mathrm{i}\sin \mathrm{n}\theta$. $(\cos\theta + \mathrm{i}\sin\theta)^n = \cos \mathrm{n}\theta + \mathrm{i}\sin \mathrm{n}\theta$
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.

exercises.lol exercises.com.cn