D · Sequences and series

AQA · A-Level · Mathematics · Vocabulary in context

Word	Example
sequence /ˈsiːkwəns/	A **sequence** places its terms in a particular order.
series /ˈsɪəriːz/	A **series** is the sum of its terms.
common difference /ˈkɒmən ˈdɪfrəns/	In the sequence 3, 7, 11, 15, the **common difference** is 4. 3, 7, 11, 15 4
common ratio /ˈkɒmən ˈreɪʃɪəʊ/	In the sequence 2, 6, 18, 54, the **common ratio** is 3. 2, 6, 18, 54 3
recurrence relation /rɪˈkʌrəns rɪˈleɪʃn/	A **recurrence relation** calculates new terms using earlier ones.
increasing /ɪnˈkriːsɪŋ/	A sequence is **increasing** if each term is bigger than the last.
decreasing /ˈdiːkriːsɪŋ/	A sequence is **decreasing** if each term is smaller than the last.
periodic /ˌpɪərɪˈɒdɪk/	The sequence 1, 0, 1, 0, … is **periodic**: it repeats every two terms. 1, 0, 1, 0, …
limit /ˈlɪmɪt/	The terms of 1, ½, ¼, … get closer and closer to a **limit** of 0. 1, ½, ¼, … 0
arithmetic sequence /əˈrɪθmətɪk ˈsiːkwəns/	2, 7, 12, 17 is an **arithmetic sequence**. 2, 7, 12, 17
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

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converges /kən'vɜ:dʒɪz/	The series $1 + ½ + ¼ + \ldots$ **converges** to 2. $1 + ½ + ¼ + \ldots$ 2
diverges /daɪ'vɜ:dʒɪz/	The series $1 + 2 + 4 + 8 + \ldots$ **diverges**, because its sum grows without limit. $1 + 2 + 4 + 8 + \ldots$
binomial expansion /baɪ'nəʊmɪəl ek'spænʃn/	The **binomial expansion** writes $(1 + x)^3$ as $1 + 3x + 3x^2 + x^3$. $(1 + x)^3$ $1 + 3x + 3x^2 + x^3$
valid	The expansion of $(1 + x)^{-1}$ is **valid** only when x is between -1 and 1. $(1 + x)^{-1}$ x -1 1
approximation /əˌprɒksɪ'meɪʃn/	The first three terms give a good **approximation** when x is small. x

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