




 Cambridge IGCSE 0580

# Algebra Vocabulary

## 代数 (Algebra) 词汇卡

Topic 2 | Core & Extended

**FREE** | **Cambridge 0580** | **Bilingual 双语**

 Bilingual Vocabulary Cards 双语词汇卡

 For Chinese-English Math Education

适用于中英双语数学教学

 Vocab Tables  Printable Flashcards  Core & Extended

25Maths | IGCSE Mathematics Visual Resources

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## How to Use This Resource / 使用说明 **What's inside / 内容概览**

📊 **Vocabulary Tables** (p. 3–5) — 40+ bilingual terms with pinyin & definitions

✂️ **Flashcards** (p. 6–11) — 3 sets of printable cards, print front/back pages back-to-back

🔑 **Extended labels** — Look for (*Ext.*) to spot Extended-only content



## **Differentiation Tips / 分层教学建议**

★ **Core students** — Focus on terms without the (*Ext.*) marker

🔑 **Extended students** — Learn all terms including (*Ext.*) items

👥 **Bilingual learners** — Use the Chinese and Pinyin columns for support

🖨️ **Printing tip** — Print flashcard pages double-sided for front/back cards

## ♥ **Enjoying this resource?**

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Also available: Number, Coordinate Geometry, Geometry, Mensuration, Trigonometry, Vectors & Statistics Vocabulary Cards

## 2.1–2.2 Expressions & Algebraic Manipulation

C2.1–C2.2/E2.1–E2.2 代数表达式与代数运算

### Algebraic Expressions | 代数表达式

| English 英文          | Chinese 中文 | Pinyin 拼音      | Definition 定义   |
|---------------------|------------|----------------|---|
| <b>Variable</b>     | 变量         | biàn liàng     | A letter that represents an unknown or changing value       |
| <b>Constant</b>     | 常量         | cháng liàng    | A fixed value that does not change, e.g. 5,<br>$\pi$        |
| <b>Coefficient</b>  | 系数         | xì shù         | The number multiplying a variable, e.g. 3 in $3x$           |
| <b>Expression</b>   | 表达式        | biǎo dá shì    | A combination of terms, e.g. $2x + 3y - 1$                  |
| <b>Term</b>         | 项          | xiàng          | A single part of an expression, e.g. $5x^2$                 |
| <b>Like terms</b>   | 同类项        | tóng lèi xiàng | Terms with the same variable and power, e.g. $3x$ and $-2x$ |
| <b>Formula</b>      | 公式         | gōng shì       | An equation showing a relationship, e.g.<br>$A = \pi r^2$   |
| <b>Substitution</b> | 代入         | dài rù         | Replacing a variable with a number to evaluate              |

### Algebraic Manipulation | 代数运算

| English 英文                   | Chinese 中文 | Pinyin 拼音       | Definition 定义   |
|------------------------------|------------|-----------------|---|
| <b>Simplify</b>              | 化简         | huà jiǎn        | Collect like terms to write in a shorter form               |
| <b>Expand</b>                | 展开         | zhǎn kāi        | Multiply out brackets, e.g. $2(x + 3) = 2x + 6$             |
| <b>Factorise</b>             | 因式分解       | yīn shì fēn jiě | Write as a product of factors, e.g.<br>$6x + 9 = 3(2x + 3)$ |
| <b>Common factor</b>         | 公因式        | gōng yīn shì    | A factor shared by all terms, e.g. 3 in $6x + 9$            |
| <b>Difference of squares</b> | 平方差        | píng fāng chā   | $a^2 - b^2 = (a + b)(a - b)$ (Ext.)                         |
| <b>Complete the square</b>   | 配方         | pèi fāng        | Write $ax^2 + bx + c$ as $a(x + p)^2 + q$ (Ext.)            |

## 2.4–2.7 Equations, Inequalities & Sequences

C2.4–C2.7/E2.4–E2.7 方程、不等式与数列

### Indices & Equations | 指数与方程

| English 英文                     | Chinese 中文 | Pinyin 拼音             | Definition 定义  |
|--------------------------------|------------|-----------------------|--|
| <b>Index (plural: indices)</b> | 指数         | zhǐ shù               | The power in $a^n$ ; rules: $a^m \times a^n = a^{m+n}$ |
| <b>Linear equation</b>         | 一次方程       | yī cì fāng chéng      | Equation of degree 1, e.g. $3x - 5 = 7$                |
| <b>Quadratic equation</b>      | 二次方程       | èr cì fāng chéng      | Equation of degree 2, e.g. $x^2 - 5x + 6 = 0$ (Ext.)   |
| <b>Simultaneous equations</b>  | 联立方程       | lián lì fāng chéng    | Two or more equations solved together                  |
| <b>Subject of a formula</b>    | 公式的主项      | gōng shì de zhǔ xiàng | The variable written alone on one side                 |
| <b>Quadratic formula</b>       | 求根公式       | qiú gēn gōng shì      | $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ (Ext.)        |
| <b>Root / Solution</b>         | 根/解        | gēn / jiě             | A value of $x$ that satisfies the equation             |

### Inequalities & Sequences | 不等式与数列

| English 英文                   | Chinese 中文 | Pinyin 拼音           | Definition 定义   |
|------------------------------|------------|---------------------|---|
| <b>Inequality</b>            | 不等式        | bù děng shì         | A statement using $<$ , $>$ , $\leq$ , $\geq$             |
| <b>Number line</b>           | 数轴         | shù zhóu            | A line showing inequality solutions (open/closed circles) |
| <b>Region</b>                | 区域         | qū yù               | Area on a graph satisfying inequalities (Ext.)            |
| <b>Sequence</b>              | 数列         | shù liè             | An ordered list of numbers following a rule               |
| <b><math>n</math>th term</b> | 通项公式       | tōng xiàng gōng shì | The formula for the general term, e.g. $2n + 1$           |
| <b>Linear sequence</b>       | 等差数列       | děng chā shù liè    | Common difference between terms, e.g. 3, 7, 11, ...       |
| <b>Quadratic sequence</b>    | 二次数列       | èr cì shù liè       | $n$ th term is a quadratic, e.g. $n^2 + 1$                |

## 2.3, 2.8–2.13 Graphs, Functions & Advanced Algebra

E2.3, C2.9–C2.11/E2.8–E2.13 图形、函数与高级代数

### Graphs | 图形

| English 英文                      | Chinese 中文 | Pinyin 拼音       | Definition 定义   |
|---------------------------------|------------|-----------------|---|
| <b>Gradient / Slope</b>         | 斜率         | xié lǜ          | Steepness of a line; rate of change                         |
| <b><math>y</math>-intercept</b> | $y$ 轴截距    | $y$ zhóu jié jù | Where a graph crosses the $y$ -axis                         |
| <b>Travel graph</b>             | 行程图        | xíng chéng tú   | Distance–time graph showing a journey                       |
| <b>Tangent (to curve)</b>       | 切线         | qiē xiàn        | A line touching a curve at one point                        |
| <b>Asymptote</b>                | 渐近线        | jiàn jìn xiàn   | A line a curve approaches but never reaches ( <i>Ext.</i> ) |
| <b>Turning point</b>            | 极值点        | jí zhí diǎn     | A maximum or minimum on a curve ( <i>Ext.</i> )             |

### Functions & Advanced Algebra | 函数与高级代数

| English 英文                | Chinese 中文 | Pinyin 拼音       | Definition 定义   |
|---------------------------|------------|-----------------|---|
| <b>Function</b>           | 函数         | hán shù         | A rule mapping each input to one output, $f(x)$ ( <i>Ext.</i> )               |
| <b>Domain</b>             | 定义域        | dìng yì yù      | The set of allowed input values ( <i>Ext.</i> )                               |
| <b>Range</b>              | 值域         | zhí yù          | The set of possible output values ( <i>Ext.</i> )                             |
| <b>Inverse function</b>   | 反函数        | fǎn hán shù     | $f^{-1}(x)$ : reverses the effect of $f$ ( <i>Ext.</i> )                      |
| <b>Composite function</b> | 复合函数       | fù hé hán shù   | $fg(x) = f(g(x))$ — apply $g$ then $f$ ( <i>Ext.</i> )                        |
| <b>Derivative</b>         | 导数         | dǎo shù         | $\frac{dy}{dx}$ : rate of change of $y$ w.r.t. $x$ ( <i>Ext.</i> )            |
| <b>Algebraic fraction</b> | 代数分式       | dài shù fēn shì | A fraction with algebraic expressions, e.g. $\frac{x+1}{x-2}$ ( <i>Ext.</i> ) |
| <b>Direct proportion</b>  | 正比例        | zhèng bǐ lì     | $y \propto x$ : $y$ increases as $x$ increases ( <i>Ext.</i> )                |
| <b>Inverse proportion</b> | 反比例        | fǎn bǐ lì       | $y \propto \frac{1}{x}$ : $y$ decreases as $x$ increases ( <i>Ext.</i> )      |

## Flashcards — Front (Terms)

闪卡正面 — 术语

**Variable**

变量

**Factorise**

因式分解

**Linear Equation**

一次方程

**Quadratic  
Equation**

二次方程

**Sequence**

数列

**Inequality**

不等式

Cut along dashed lines. Print this and next back-to-back. 沿虚线剪开。本页与下一页双面打印。

## Flashcards — Back (Definitions)

闪卡背面一定义

### Factorise

因式分解

Write as a product of factors,  
e.g.  $6x + 9 = 3(2x + 3)$   
写成因式乘积, 如  $6x + 9 = 3(2x + 3)$

### Variable

变量

A letter representing an unknown or changing value  
代表未知或变化值的字母

### Quadratic Equation

二次方程

Equation of degree 2, e.g.  $x^2 - 5x + 6 = 0$   
二次方程, 如  $x^2 - 5x + 6 = 0$

### Linear Equation

一次方程

Equation of degree 1, e.g.  $3x - 5 = 7$   
一次方程, 如  $3x - 5 = 7$

### Inequality

不等式

A statement using  $<$ ,  $>$ ,  $\leq$ ,  $\geq$   
使用  $<$ ,  $>$ ,  $\leq$ ,  $\geq$  的数学陈述

### Sequence

数列

An ordered list of numbers following a rule  
按规则排列的有序数列

Print pages 6–7 back-to-back, then cut along dashed lines. 第 6–7 页双面打印, 沿虚线剪裁。

## Flashcards — Front (More Terms)

闪卡正面 — 更多术语

**Gradient**

斜率

**Function**

函数

**Expand**

展开

**$n$ th Term**

通项公式

**Simultaneous Eq.**

联立方程

**Derivative**

导数

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## Flashcards — Back (Definitions)

闪卡背面一定义

### Function

函数

A rule mapping each input to one output,  $f(x)$   
将每个输入映射到一个输出的规则  $f(x)$

### Gradient

斜率

Steepness of a line; rate of change  
直线的陡峭程度; 变化率

### $n$ th Term

通项公式

Formula for the general term, e.g.  $2n + 1$   
通项公式, 如  $2n + 1$

### Expand

展开

Multiply out brackets, e.g.  $2(x+3) = 2x+6$   
展开括号, 如  $2(x+3) = 2x+6$

### Derivative

导数

$\frac{dy}{dx}$ : rate of change of  $y$  w.r.t.  $x$   
 $\frac{dy}{dx}$ :  $y$  对  $x$  的变化率

### Simultaneous Eq.

联立方程

Two or more equations solved together  
两个或多个方程联合求解

🖨️ Print pages 8–9 back-to-back, then cut along dashed lines. 第 8–9 页双面打印, 沿虚线剪裁。

## Flashcards — Front (Even More Terms)

闪卡正面—更多术语

**Expression**

表达式

**Coefficient**

系数

**Simplify**

化简

**Subject**

主项

**Arithmetic Seq.**

等差数列

**Domain**

定义域

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## Flashcards — Back (Definitions)

闪卡背面一定义

### Coefficient

系数

The number multiplying  
a variable, e.g. 3 in  $3x$   
变量前的数字系数, 如  $3x$  中的 3

### Expression

表达式

A combination of terms, e.g.  $2x + 3y - 1$   
项的组合, 如  $2x + 3y - 1$

### Subject

主项

The variable written alone  
on one side of a formula  
公式中单独写在一边的变量

### Simplify

化简

Collect like terms to  
write in a shorter form  
合并同类项, 化为最简形式

### Domain

定义域

The set of allowed input values (*Ext.*)  
允许的输入值集合

### Arithmetic Seq.

等差数列

Common difference be-  
tween terms, e.g. 3, 7, 11, ...  
相邻项之间有公差, 如 3, 7, 11, ...

🖨️ Print pages 10–11 back-to-back, then cut along dashed lines. 第 10–11 页双面打印, 沿虚线剪裁。