




Edexcel IGCSE 4MA1

Vectors & Transformation Geometry Vocabulary

向量与变换几何词汇卡

Topic 5 | Foundation & Higher

FREE | **Edexcel 4MA1** | **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  Foundation & Higher

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) — 30 bilingual terms with pinyin & definitions
- ✂️ **Flashcards** (p. 6–11) — 3 sets of printable cards, print front/back pages back-to-back
- 🔍 **Higher labels** — Look for (*H*) to spot Higher-only content



Differentiation Tips / 分层教学建议

- ★ **Foundation students** — Focus on transformation terms without the (*H*) marker
- 🔍 **Higher students** — Learn all terms including (*H*) items (especially vectors!)
- 👥 **Bilingual learners** — Use the Chinese and Pinyin columns for support
- 🖨️ **Printing tip** — Print flashcard pages double-sided for front/back cards

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5.2 Transformation Geometry (Both Tiers)

5.2 变换几何 (两种分级)

≡ Transformation Basics | 变换基础

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Transformation	变换	biàn huàn	A change in position, size, or orientation of a shape
Image	像	xiàng	The shape after a transformation has been applied
Object	原像	yuán xiàng	The original shape before transformation
Reflection	反射	fǎn shè	A transformation that flips a shape over a mirror line
Mirror line	对称轴	duì chēn zhóu	The line of reflection

≡ Rotation & Enlargement | 旋转与放大

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Rotation	旋转	xuán zhuǎn	A transformation that turns a shape around a fixed point
Centre of rotation	旋转中心	xuán zhuǎn zhōng xīn	The fixed point around which rotation occurs
Angle of rotation	旋转角	xuán zhuǎn jiǎo	The angle through which a shape is rotated
Enlargement	放大	fàng dà	A transformation that changes the size of a shape
Centre of enlargement	放大中心	fàng dà zhōng xīn	The fixed point from which enlargement occurs
Scale factor	比例因子	bǐ lì yīn zǐ	The ratio of image size to object size; can be positive, fractional, or negative

5.2 Translation & 5.1 Vectors (Higher)

5.2 平移与 5.1 向量 (高级)

Translation & Combined Transformations | 平移与复合变换

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Translation	平移	píng yí	A transformation that slides a shape without rotation or reflection
Invariant	不变量	bù biàn liàng	A property that remains unchanged after transformation
Combined transformation	复合变换	fù hé biàn huàn	Two or more transformations applied in sequence

Vector Basics | 向量基础

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Vector	向量	xiàng liàng	A quantity with both magnitude and direction (H)
Column vector	列向量	liè xiàng liàng	A vector written as $\begin{pmatrix} x \\ y \end{pmatrix}$ (H)
Displacement	位移	wèi yí	A vector representing change in position (H)
Scalar	标量	biāo liàng	A quantity with magnitude only, no direction (H)
Scalar multiplication	标量乘法	biāo liàng chéng fǎ	Multiplying a vector by a scalar (H)
Vector addition	向量加法	xiàng liàng jiā fǎ	Adding two vectors by adding corresponding components (H)
Vector subtraction	向量减法	xiàng liàng jiǎn fǎ	Subtracting one vector from another (H)

5.1 Magnitude & Vector Geometry (Higher)

5.1 模与向量几何(高级)

≡ Magnitude & Special Vectors | 模与特殊向量

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Magnitude	模	mó	The length of a vector, calculated as $\sqrt{x^2 + y^2}$ (H)
Modulus	模	mó	Another term for magnitude of a vector (H)
Unit vector	单位向量	dān wèi xiàng liàng	A vector with magnitude 1 (H)
Position vector	位置向量	wèi zhì xiàng liàng	A vector from the origin to a point (H)
Zero vector	零向量	líng xiàng liàng	A vector with magnitude 0, written as $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$ (H)

≡ Vector Relationships | 向量关系

English 英文	Chinese 中文	Pinyin 拼音	Definition 定义
Parallel vectors	平行向量	píng xíng xiàng liàng	Vectors with the same or opposite direction (H)
Collinear	共线	gòng xiàn	Points lying on the same straight line (H)
Coplanar	共面	gòng miàn	Vectors lying in the same plane (H)
Resultant vector	合向量	hé xiàng liàng	The vector sum of two or more vectors (H)

Flashcards — Front (Terms)

闪卡正面 — 术语

Transformation

变换

Reflection

反射

Rotation

旋转

Enlargement

放大

Translation

平移

Scale Factor

比例因子

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

Reflection

反射

A transformation that flips
a shape over a mirror line
在镜面线上翻转图形的变换

Transformation

变换

A change in position, size,
or orientation of a shape
改变图形位置、大小或方向

Enlargement

放大

A transformation that
changes the size of a shape
改变图形大小的变换

Rotation

旋转

A transformation that turns a
shape around a fixed point
绕固定点旋转图形的变换

Scale Factor

比例因子

The ratio of image size to object size
像与原像的大小比率

Translation

平移

A transformation that slides a
shape without rotation or reflection
不旋转不反射地平移图形的变换

🖨️ 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

Vector
向量

Column Vector
列向量

Scalar
标量

Magnitude
模

Position Vector
位置向量

Displacement
位移

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

Column Vector

列向量

A vector written as $\begin{pmatrix} x \\ y \end{pmatrix}$ (H)
写成列形式的向量 (H)

Vector

向量

A quantity with both magnitude and direction (H)
既有大小又有方向的量 (H)

Magnitude

模

The length of a vector, $\sqrt{x^2 + y^2}$ (H)
向量的长度 $\sqrt{x^2 + y^2}$ (H)

Scalar

标量

A quantity with magnitude only, no direction (H)
只有大小没有方向的量 (H)

Displacement

位移

A vector representing change in position (H)
表示位置变化的向量 (H)

Position Vector

位置向量

A vector from the origin to a point (H)
从原点到某点的向量 (H)

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

Mirror Line

对称轴

Centre of Rotation

旋转中心

Vector Addition

向量加法

Parallel Vectors

平行向量

Collinear

共线

Resultant Vector

合向量

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

Centre of Rotation

旋转中心

The fixed point around
which rotation occurs
旋转所围绕的固定点

Mirror Line

对称轴

The line of reflection
反射的对称线

Parallel Vectors

平行向量

Vectors with the same
or opposite direction (H)
方向相同或相反的向量 (H)

Vector Addition

向量加法

Adding two vectors by adding
corresponding components (H)
通过对应分量相加来相加向量 (H)

Resultant Vector

合向量

The vector sum of two
or more vectors (H)
两个或多个向量的和 (H)

Collinear

共线

Points lying on the same straight line (H)
在同一直线上的点 (H)

🖨️ 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。