

小六數學溫習摘要

Primary 6 Mathematics Revision Summary

6S1 對稱

6S1 Symmetry

沿一條直線對摺後，兩邊若能完全重合，該圖形便有軸對稱性；畫另一半時要逐點檢查位置。

A line of symmetry makes both halves coincide when folded. Construct the reflected half by checking corresponding points.

學習重點

What to learn

- 對稱軸是一條使圖形對摺後完全重合的直線；一個圖形可以沒有、一條或多條對稱軸。
A symmetry line allows an exact fold match. A shape can have none, one or several.
- 對應的兩點位於對稱軸兩側，到對稱軸的垂直距離相等。
Corresponding points lie on opposite sides at equal perpendicular distances from the symmetry line.
- 在方格紙上補畫時，先找頂點、數格定位，再依原來連接次序連線。
On squared paper, locate the reflected vertices first, then join them in the matching order.
- 對稱軸上的點對摺後位置不變；圖形轉換擺放方向，不會改變對稱軸的數目。
Points on the symmetry line remain fixed. Rotating the drawing does not change the number of symmetry lines.

考試前必記

Remember before a test

- 正方形有 4 條對稱軸；非正方形的長方形有 2 條，對角線並不是它的對稱軸。
A square has four symmetry lines. A non-square rectangle has two, excluding its diagonals.
- 等邊三角形有 3 條；非等邊的等腰三角形有 1 條；不等邊三角形沒有對稱軸。
An equilateral triangle has three lines; a non-equilateral isosceles triangle has one; a scalene triangle has none.
- 圓的每條直徑所在的直線都可作對稱軸，所以圓有無限多條對稱軸。
Every line through a circle's centre is a symmetry line, giving infinitely many.
- 對稱軸可能是斜線。數格時應量垂直於軸的距離，不能一律向左或向右搬動。
A symmetry line may be slanted. Use perpendicular distance rather than always moving horizontally.

常見錯誤

Common mistakes

- 只看左右大致相似，沒有檢查邊界、角和細節能否重合。
Accepting a rough resemblance without matching the full outline and details.
- 把圖形分成面積相等兩半的任何直線，都當作對稱軸。
Assuming every equal-area division is a symmetry line.
- 把原來半邊平移過去，沒有作鏡像反映。
Sliding the original half across instead of reflecting it.
- 補畫時對應點距軸不等，或把頂點連接次序弄錯。
Placing points at unequal distances or joining them in the wrong order.

快速自查

Quick check

☐ 能用對摺判別軸對稱 I can test symmetry by folding.	☐ 能找出全部對稱軸 I can find all symmetry lines.
☐ 能逐點補畫另一半 I can construct corresponding points.	☐ 能檢查斜向的對稱軸 I can work with a slanted symmetry line.

自編例題

Original worked example

方格紙上的對稱軸是一條直立線。頂點 A 在軸左邊 3 格，頂點 B 在軸上。它們的對應點在哪裏？

On squared paper, the line of symmetry is vertical. Vertex A is 3 squares to its left, and vertex B is on the line. Where are their corresponding points?

思考與解答：A 的對應點在軸右邊 3 格，並與 A 同高；B 的對應點就是 B 本身。

Reasoning and answer: A's corresponding point is 3 squares to the right of the line, at the same height as A. B's corresponding point is B itself.

再試與答案：一個長 8 cm、闊 5 cm 的長方形有多少條對稱軸？答案：2 條，均通過兩組對邊的中點。

Further practice and answer: How many lines of symmetry does an 8 cm by 5 cm rectangle have? Answer: 2. Each joins the midpoints of a pair of opposite sides.