

2025

AUSTRALIAN MATHEMATICS COMPETITION

AMC.

AMT.
AUSTRALIAN
MATHS TRUST

Upper
Primary
Years 5–6

Information 考試說明

- There are 30 questions: 25 multiple-choice and 5 integer.
本次考試共 30 題，包含 25 題單選題和 5 題答案為整數 000~999 的選填題。
- You are allowed 60 minutes to do the questions.
考試時長為 **60 分鐘**。
- There are no penalties for incorrect answers.
答錯不扣分。
- The questions have been checked thoroughly. Each question is clearly written and no further explanation will be given.
本次考試的所有試題已仔細檢查。每題均清楚陳述，不會提供更多解釋。
- Diagrams are not drawn to scale. They are intended only as aids.
圖形並非按比例繪製，僅供參考。

Competition rules 考試規則

- Do not open the paper until told to do so.
收到監考老師指示前，請勿翻開試卷。
- Mobile phones and smart watches are not allowed.
禁止使用手機和智慧型手錶。
- You may use calculators.
允許使用簡易型計算機。

No student may sit the competition more than once or sit more than one division of the competition. AMT conducts integrity checks on competition results and reserves the right to withhold results or disqualify students if plagiarism or duplicate sittings are suspected.

IMPORTANT

All papers must be immediately returned to a supervisor at the end of the competition.
This paper is not for circulation or distribution until Monday 29 September 2025.

DATE

5 August

TIME ALLOWED

60 minutes

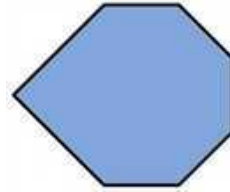
TURN THE BOOKLET
OVER AND READ THE
INSTRUCTIONS ON THE
BACK COVER.

Upper Primary Division
Questions 1 to 10, 3 marks each
1-10 題，每題 3 分

1. How many corners does this shape have?

請問這個圖形有多少個角？

- (A)4 (B)5 (C)6 (D)7 (E)8



2. What is the value of $6000 + 50 + 38$?

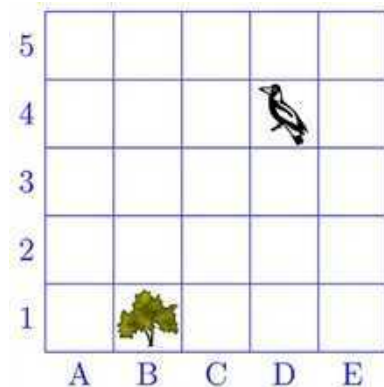
請問 $6000 + 50 + 38$ 的值是多少？

- (A)688 (B)6088 (C)65038 (D)65088 (E)605038

3. The bird in square D4 needs to fly back to the tree in square B1. Which one of the following could be the path taken?

位於 D4 格的小鳥需要飛回 B1 格的大樹處。請問以下哪一條可能是牠的飛行路線？

- (A) 2 squares right and 2 squares down
 向右飛 2 格，再向下飛 2 格
- (B) 3 squares left and 1 square up
 向左飛 3 格，再向上飛 1 格
- (C) 3 squares right and 2 squares up
 向右飛 3 格，再向上飛 2 格
- (D) 1 square right and 3 squares down
 向右飛 1 格，再向下飛 3 格
- (E) 2 squares left and 3 squares down
 向左飛 2 格，再向下飛 3 格

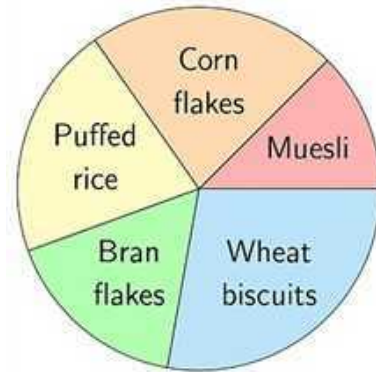


4. The pie chart shows the breakfast cereal preferences of a group of people. Which is the most popular type of cereal?

右側餅狀圖顯示了一組受訪者對各類早餐穀物的偏好分佈情況。請問哪種穀物最受歡迎？

- (A) Bran flakes 麥麩片
 (B) Corn flakes 玉米片
 (C) Muesli 什錦穀物
 (D) Puffed rice 膨化大米
 (E) Wheat biscuits 小麥脆餅

Favourite Cereal
 穀物的偏好分佈情況



5. How many \$100 notes are needed to make \$12000?
 請問需要多少張100美元的紙幣才能湊齊12000美元？

- (A) 120000 (B) 12000 (C) 1200 (D) 120 (E) 12



6. Which one of these shapes has exactly 4 lines of symmetry?
 請問以下哪個圖形恰好有4條對稱軸？

- (A) (B) (C)
 (D) (E)

7. For his birthday, Pravan takes a jar of 60 lollies to school and shares the whole jar equally with his group of friends. Which of the following could **NOT** be the size of the group?

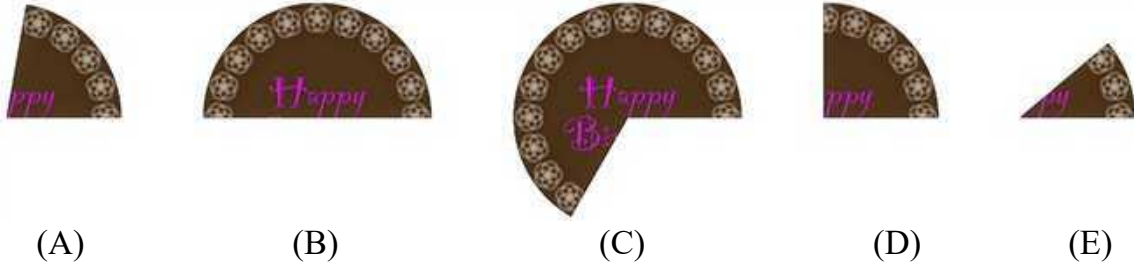
小普過生日時帶了一罐糖果（共60顆）到學校，並打算與他的朋友們一起平分這罐糖果。請問下面哪個數字不可能是平分這罐糖果的人數？

- (A) 6 (B) 8 (C) 10 (D) 12 (E) 15

8. Ellie's slice of birthday cake is shown.

Geordie notices that Ellie's slice is two-thirds the size of his own slice. Which of the following could be Geordie's slice?

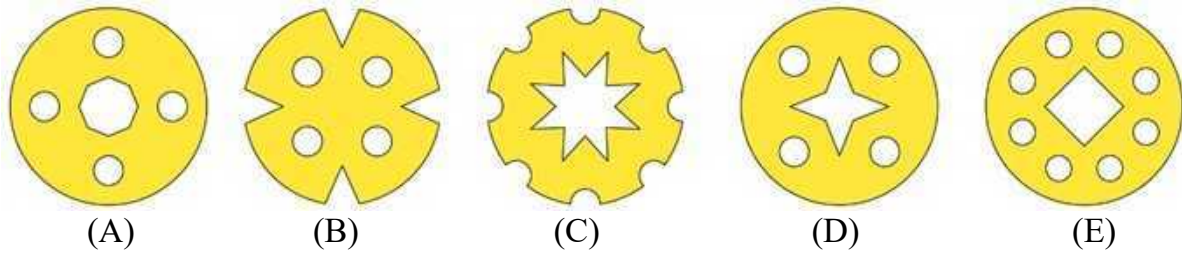
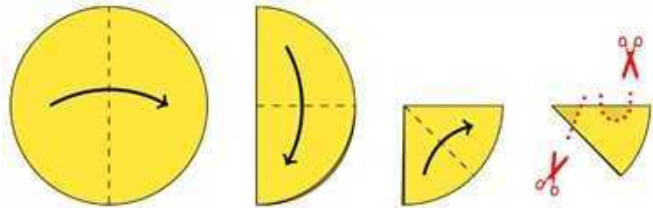
莉莉分到的蛋糕如圖所示。小喬發現莉莉分到的蛋糕大小是他那塊蛋糕的三分之二。請問以下哪塊蛋糕可能是小喬分到的？



9. Starting with a circle of paper, Dan folds it in half, then in half again and in half for a third time, as shown.

He then cuts two small parts from the folded paper as shown and unfolds it. Which of these is the unfolded paper?

如圖所示，丹丹有一張圓形紙片，他首先將其對折，接著再對折一次，然後再進行第三次對折。之後他按照圖示，在折好的紙上剪去兩個小部分。當他把紙展開後，請問會得到下面哪個圖案？

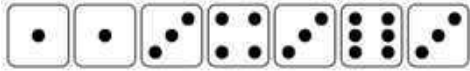


10. In this game, for each roll of a dice you move your bee one cell in the direction shown in the key.

在這個遊戲中，每擲一次骰子，你就需要根據圖示方向鍵將蜜蜂移動一格。

Starting at the home cell in the centre, you roll

蜜蜂會從位於正中心的家出發，你擲出了以下點數：



Which pair of rolls will take you home?

請問再來哪一對骰子點數的組合能讓蜜蜂回家？

- (A) (B) (C) (D) (E)

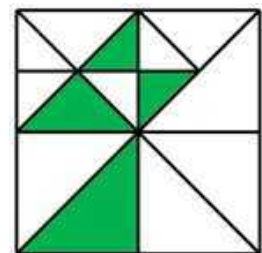


Questions 11 to 20, 4 marks each
11-20 題，每題 4 分

11. What fraction of this square is shaded?

請問陰影部分面積占整個正方形面積的幾分之幾？

- (A) One-half $\frac{1}{2}$ (B) One-third $\frac{1}{3}$ (C) One-quarter $\frac{1}{4}$
(D) One-fifth $\frac{1}{5}$ (E) One-eighth $\frac{1}{8}$

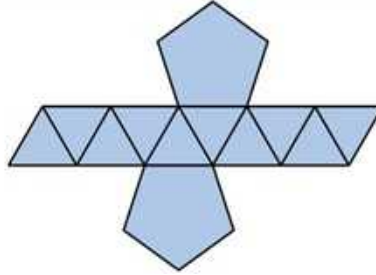
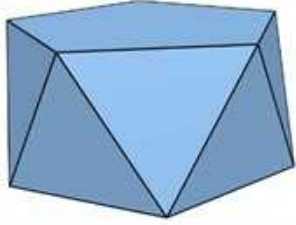


12. This solid has a pentagon at the top and bottom and 10 zigzagging triangles around the middle. The diagram also shows a net.

這個立體圖形的上下兩端都是一個五邊形，中間部分由10個呈“之”字形排列的三角形組成。下圖中還顯示了該立體圖形的展開圖。

How many edges does the solid have?

請問這個立體圖形有多少條邊？



- (A)15 (B)20 (C)24 (D)33 (E)40

13. In this grid, the 4 symbols represent 4 different numbers. For most rows and columns, the total value is shown.

在右側方格中，4種符號分別代表4個不同的數字。如圖所示，大多數行和列的總和已經標示出。

What is the total value of the last row?

請問最後一行的總和是多少？

- (A)10 (B)12 (C)14 (D)16 (E)18

				14
				21
				14
				?
20	10	16	21	

14. Trinary World is a shop where new barcodes have been invented called *trinarys*. The shaded squares in a trinary indicate which of the numbers below are added to give the price in dollars :

“三元世界”商店推出了一種新型條碼，叫做三元碼。在三元碼系統中，黑色方格表示需要將下方對應的數字相加，所得總和即為商品價格（單位：美元）：



For example, this barcode indicates $21 + 15 + 9 + 6 = 51$ dollars :

例如，下面這個三元碼表示的價格是 $21 + 15 + 9 + 6 = 51$ 美元：



Which one of the following Trinarys indicates the cheapest price?

請問以下哪個三元碼表示的價格最低？

- (A)

--	--	--	--	--	--

 (B)

--	--	--	--	--	--	--

 (C)

--	--	--	--	--	--	--
- (D)

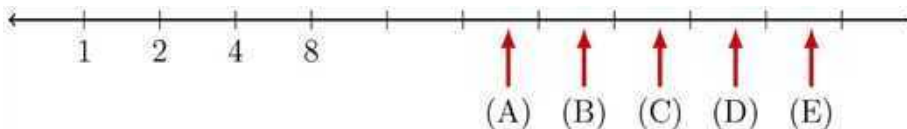
--	--	--	--	--	--	--

 (E)

--	--	--	--	--	--	--

15. On this strange number line, each step to the right by one tick mark doubles the value of the number. Some numbers are shown on the scale.

在這條特殊的數軸上，每向右移動一個刻度，數字的值就會翻倍。數軸上的部分刻度已標出它的數值。



Which letter best represents the position of 100 on the number line?

請問哪個字母（A、B、C、D、E）最能代表100在這條數軸上的位置？

16. Cally displays the hair colours of the students in Year 6 at her school using a divided bar chart:

麗麗用分段條形圖展示了學校六年級學生的髮色分佈情況：



Which of the following is **NOT** a possible number of Year 6 students at Cally's school?

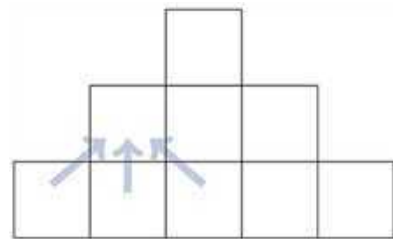
請問以下哪個選項不可能是麗麗學校六年級學生的人數？

- (A) 240 (B) 100 (C) 40 (D) 25 (E) 20

17. Xian fills this grid with numbers.

小賢在填寫一個數字網格，填寫規則如下：

He places the numbers from 1 to 5 in the 5 squares in the bottom row, in some order. In the next two rows, each square contains the sum of the numbers in the 3 closest squares in the row below.



The arrows indicate how this addition works for the first square in the second row.

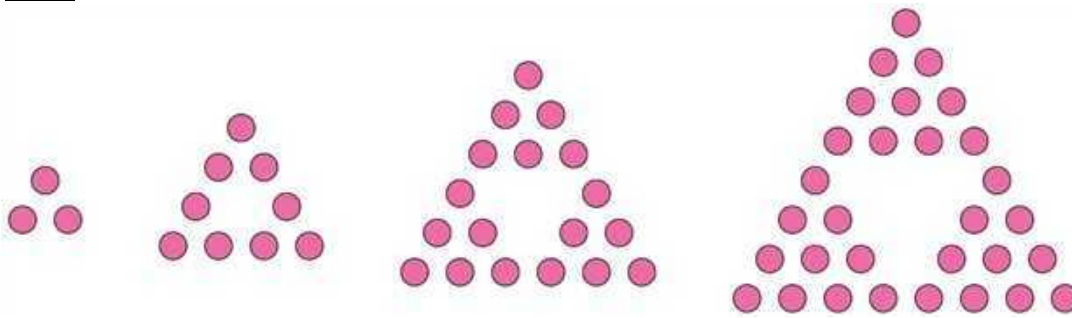
最底層五個方格需要填入數字1至5（順序不限）；然後上面兩層中，每個方格內的數字等於其下方一層中與其最接近的三個方格內的數字之和；箭頭指示了第二層左邊第一個方格的計算方式。

What is the largest possible value of the number in the top square?

請問最上層方格內的數的最大可能值是多少？

- (A) 27 (B) 29 (C) 32 (D) 34 (E) 35

18. Simone creates a pattern of designs. The first four designs are shown:
 西蒙設計了一組圖案，前四個圖案如下所示：



She continues this pattern.

她按照這個規律繼續設計圖案。

In her favourite design, the lowest row has 12 dots. How many dots did Simone use in total for this design?

在這些設計圖案中，她最喜歡底部一列有12個圓點的圖案。請問這個圖案總共包含多少個圓點？

- (A) 36 (B) 42 (C) 60 (D) 63 (E) 78

19. A tractor can pull three times as much weight as a horse can. A horse can pull half as much weight as a ute can.

一臺拖拉機能拉動的重量是一匹馬的三倍，一匹馬能拉動的重量是一輛小貨車的一半。

Which of the following can pull the most combined weight?

請問以下哪個選項可以拉動最大的總重量？

- (A) 1 horse and 4 utes 1匹馬和4輛小貨車
 (B) 1 tractor and 1 ute 1臺拖拉機和1輛小貨車
 (C) 2 horses and 2 utes 2匹馬和2輛小貨車
 (D) 1 tractor and 4 horses 1臺拖拉機和4匹馬
 (E) 1 tractor, 1 horse and 1 ute 1臺拖拉機、1匹馬和1輛小貨車

20. Nathan wrote down the list formed by repeating the digits of 2025 :

納森寫下一個由 2025 的數字循環組成的數列 :

2, 0, 2, 5, 2, 0, 2, 5, 2, 0, 2, 5, . . .

He stopped when the total of all the numbers in his list reached 2025. How many numbers are in his list?

當數列中所有數字相加的總和達到 2025 時，他停止書寫。請問這個數列中共有多少個數字？

(A) 225 (B) 500 (C) 825 (D) 900 (E) 1000

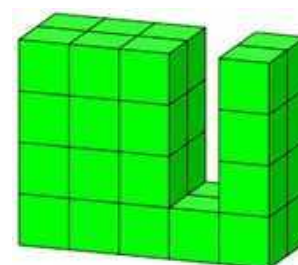
Questions 21 to 25, 5 marks each

21-25 題，每題 5 分

21. Olive glued together 34 cubes to make the solid shown.

The front layer is fully visible here, and the back layer has the same arrangement of cubes.

小奧將 34 個正方體積木黏成一個如圖所示的立體模型。該模型的正面完全可見，其背面的排列方式與正面相同。



She painted the solid on all sides, including top and bottom.

她將這個立體模型的所有面（包括頂部和底部）都塗上了顏色。

How many cubes were painted on exactly 3 faces?

請問有多少個正方體積木恰好塗了 3 個面？

(A) 6 (B) 8 (C) 10 (D) 12 (E) 14

22. At a school cupcake sale, $\frac{3}{5}$ of the cupcakes were sold. After selling

20 more cupcakes, there were $\frac{3}{20}$ remaining. How many cupcakes

were there at the start of the sale?

在學校舉辦的杯子蛋糕義賣會上，很快的就賣出了杯子蛋糕總數的

$\frac{3}{5}$ 。之後又賣出 20 個，這時剩餘蛋糕數量為總數的 $\frac{3}{20}$ 。請問在義賣

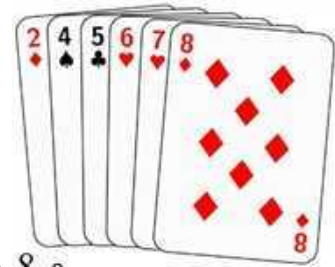
開始時有多少個杯子蛋糕？

(A) 80 (B) 100 (C) 110 (D) 120 (E) 150



23. Alexis wrote down the day of the month for 7 days, starting on a Wednesday. When he added these, the total was 56. What is the date of the last Friday of that month?
 亞亞從某月的某個星期三開始，記錄了連續7天的日期。這些日期相加的總和是56。請問該月最後一個星期五是幾號？
 (A) 25th 25號 (B) 26th 26號 (C) 28th 28號
 (D) 29th 29號 (E) 30th 30號

24. Carly has six cards with the numbers 2, 4, 5, 6, 7 and 8 on them. Using these cards, she can make 30 different two-digit numbers. For example, the smallest number she can make is 24 and the largest is 87. How many of these two-digit numbers are multiples of 3?



小莉有六張數字卡片，分別標有數字2、4、5、6、7、8。

她用這些卡片可以組成30個不同的兩位數。例如，最小的兩位數是24，最大的兩位數是87。請問在這些兩位數中，有多少個是3的倍數？

- (A) 7 (B) 10 (C) 11 (D) 12 (E) 15

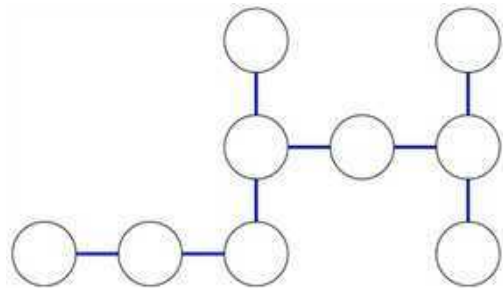
25. The numbers from 1 to 9 are to be placed in the 9 circles in this puzzle. For each of the 4 lines, the 3 circles will have the same sum. What is the largest that this sum could be?

將數字1到9填入右側謎題的9個圓圈內。

已知圖中共有4條線，要求每條線上的3個圓圈內的數字之和都相等。

請問這個和的最大值可能是多少？

- (A) 15 (B) 17 (C) 19 (D) 21 (E) 23



2025 Australian Mathematics Competition - Level B

For questions 26 to 30, shade the answer as a whole number from 0 to 999
in the space provided on the answer sheet.

問題 26-30 的答案為 0-999 之間的整數，請將答案填塗在答題卡對應區域。

Questions 26-30 are worth 6, 7, 8, 9 and 10 marks, respectively.

第 26-30 題分別為 6, 7, 8, 9, 10 分。

26. Lionel is thinking of a three-digit number that has the following properties:

小萊正在思考一個具有以下特性的三位數：

- The number is even. 該數為偶數。
- The number is a multiple of 9. 該數為9的倍數。
- One of the digits is 5. 其中一個數字是5。
- None of the digits are 0. 所有數字均不為0。
- All three digits are different. 三個數字各不相同。

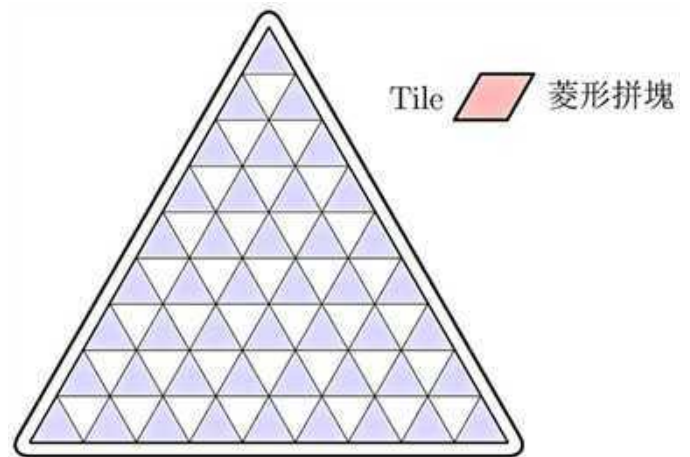
What is the smallest number that Lionel could be thinking of?

請問滿足以上條件的最小三位數是多少？

27. In the game of *Rhombus Blockade* a 1-by-1 rhombus tile must be placed on the triangular board shown so that it covers two grid triangles exactly.

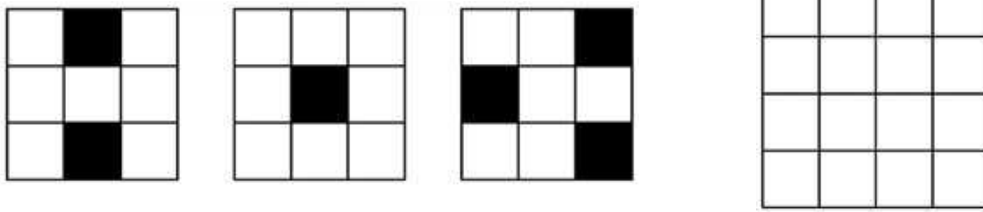
The rhombus may be rotated. In how many different ways can the rhombus be placed?

在菱形迷陣遊戲中，玩家需要將一個 1×1 的菱形拼塊放置在圖中的三角形遊戲板上，使其恰好覆蓋兩個小三角形。已知這個菱形拼塊可以旋轉，請問該菱形拼塊有多少種不同的放置方法？



28. A grid is called *sparse* if in each 2-by-2 block, exactly 1 square is black and the rest are white. Three examples of sparse 3-by-3 grids are shown on the left:

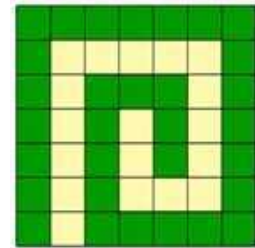
若一個網格內，每個 2×2 的區塊中都恰好有一個黑色方格，其餘均為白色方格，則稱此網格為稀疏網格。下圖左側展示了三個 3×3 稀疏網格的範例：



Counting rotations and reflections as different, how many ways are there of filling the **4-by-4** grid to make a sparse grid?

若將旋轉和鏡射後重疊都視為不同的情況下，請問有多少種塗黑方式可使得一個 4×4 的網格成為稀疏網格？

29. Jane is sewing a special patchwork quilt for 2025. The design has two spiral pathways one square wide that go from the centre to the edge. One is green and the other gold. The start of the design is shown, and it keeps spiraling out until there are 2025 squares in a 45-by-45 grid. In the finished 45-by-45 quilt, all edge squares except one will be green. How many of the 2025 squares will be gold?



小簡正在縫製一床特別的拼布被子，以紀念2025年。被子的設計包含兩條螺旋路徑，每條路徑的寬度為一個方格，從中心向外螺旋延伸至邊緣。其中一條路徑為綠色的，另一條為金色。初始設計如圖所示，螺旋持續向外擴展，直至形成一個 45×45 的網格，共計2025個方格。在縫製完成的 45×45 被子上，除了一個邊緣方格外，所有邊緣方格都是綠色。請問在這2025個方格中，有多少個方格會是金色的？

30. This square has sides of length 45 centimetres and an area of 2025 square centimetres. What is the shaded area, in square centimetres?

已知右圖正方形的邊長為45公分，面積為2025平方公分。請問圖中陰影部分的面積為多少平方公分？

