



2020 Hong Kong Mathematics Kangaroo Contest — Pre-Ecolier —

2020香港數學袋鼠競賽 — 小學低年級 2020香港数学袋鼠竞赛 — 小学低年级

Instruction | 說明 | 说明

1. DO NOT FLIP OPEN THIS FRONT COVER UNTIL YOUR PROCTOR TELLS YOU.
在未收到監考老師指示前，請不要翻開此封面。
在未收到监考老师指示前，请不要翻开此封面。
2. This is a 24 question multiple choice test. For each question, only one answer choice is correct.
這是一套包括24道選擇題的測試，每道題目只有一個正確答案。
这是一套包括24道选择题的测试，每道题目只有一个正确答案。
3. Each question is given a point value. You will receive full points for correct answer, and zero point for blank or incorrect answer. The full score of this test is 96 points.
每道題目都有給定的分值，答對得滿分，答錯或空白得0分。本次測試的滿分為96分。
每道题目都有给定的分值，答对得满分，答错或空白得0分。本次测试的满分为96分。
4. Only scratch paper, graph paper, rulers, protractors, and erasers are allowed as aids. Calculators are NOT allowed. No problems on the test *require* the use of a calculator.
只能使用草稿紙、方格紙、尺、量角器和橡皮作為輔助工具。計算器是不允許使用的。測試中沒有任何問題必須需要使用計算器。
只能使用草稿紙、方格紙、尺、量角器和橡皮作为辅助工具。计算器是不允许使用的。测试中没有任何问题必须需要使用计算器。
5. Figures are not necessarily drawn to scale.
圖形不一定按比例繪製。
图形不一定按比例绘制。
6. You will have 75 minutes to complete the test once your proctor tells you to begin.
監考老師宣布開始後，你將有75分鐘的時間完成測試。
监考老师宣布开始后，你将有75分钟的时间完成测试。

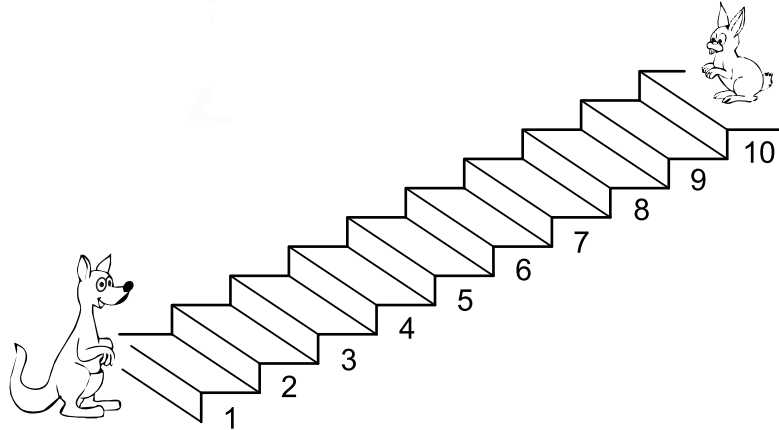
Part 1: 8 problems, 3 points each

第一部分：8 道題目，每題 3 分 | 第一部分：8 道題目，每題 3 分

1. The kangaroo goes up 3 steps each time the rabbit goes down 2 steps. On which step do they meet?

每當兔子往下走 2 級台階，袋鼠就會往上走 3 級台階。那麼他們在哪一級台階相遇？

每当兔子往下走 2 级台阶，袋鼠就会往上走 3 级台阶。那么他们在哪一级台阶相遇？

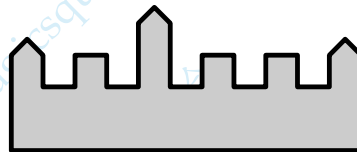


- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

2. Mordka took a selfie in front of this castle. Which of the pictures below could be Mordka's photo?

Mordka 在這座城堡前拍了張自拍照。以下哪張圖片可能是 Mordka 的自拍照？

Mordka 在这座城堡前拍了张自拍照。以下哪张图片可能是 Mordka 的自拍照？

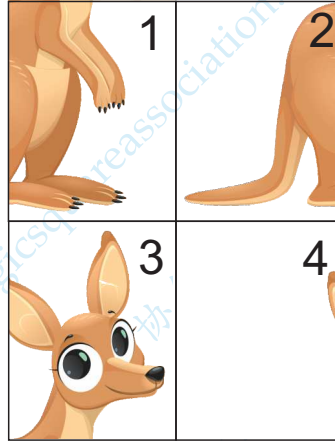


- (A) (B)
- (C) (D)
- (E)

3. Nelly arranged the 4 pieces to make a picture of a kangaroo. How are the pieces arranged?

Nelly 用 4 張卡片拼成一隻袋鼠的圖片。問這些卡片應如何排列?

Nelly 用 4 張卡片拼成一只袋鼠的图片。问这些卡片应如何排列?



- (A)

4	3
2	1

 (B)

3	4
2	1

 (C)

2	1
4	3

 (D)

4	3
1	2

 (E)

3	4
1	2

4. A magician is pulling toys out of his top hat. He always pulls out the toys in the same order as shown in the picture. The pattern in the picture repeats every five toys. Which two toys does he pull out next?

一位魔術師正從他的高頂帽中取出玩具。他總是按照圖片所示的順序取出玩具。圖片中的玩具圖案以每五個為循環。問接下來他要拿出哪兩個玩具?

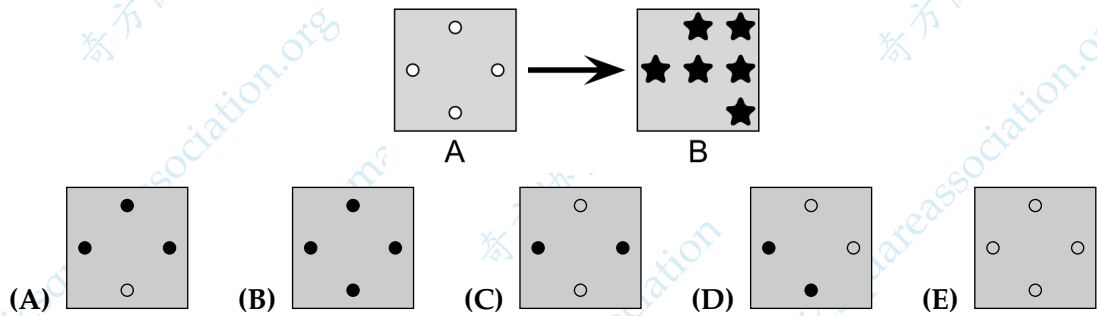
一位魔术师正从他的高顶帽中取出玩具。他总是按照图片所示的顺序取出玩具。图片中的玩具图案以每五个为循环。问接下来他要拿出哪两个玩具?



5. José has two cards of the same size. Card A has four holes cut in it. José places card A directly on top of card B. What can José see?

José 有兩張相同大小的卡片。卡片 A 上剪了四個孔。José 將卡片 A 直接放在卡片 B 的上面。José 看到的圖案是什麼？

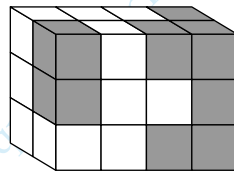
José 有兩張相同大小的卡片。卡片 A 上剪了四個孔。José 將卡片 A 直接放在卡片 B 的上面。José 看到的圖案是什麼？



6. Mary made a shape using some white cubes and 14 grey cubes. How many of these grey cubes cannot be seen in the picture?

Mary 把一些白色立方體和 14 個灰色立方體組合在一起。有多少個灰色立方體是從這個圖上看不見的？

Mary 把一些白色立方體和 14 個灰色立方體組合在一起。有多少個灰色立方體是從這個圖上看不見的？

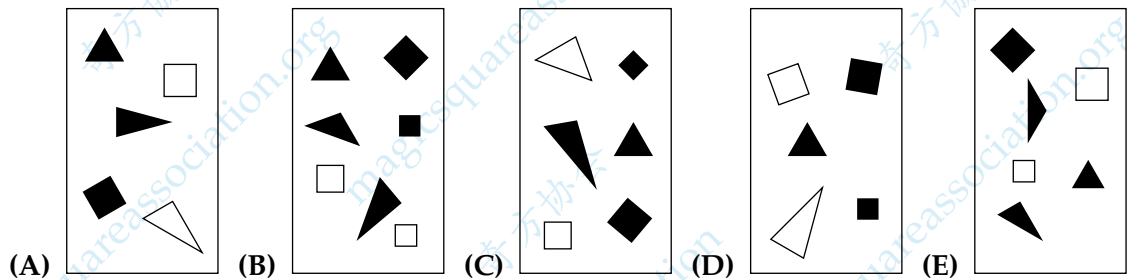


- (A) 1 (B) 3 (C) 5 (D) 6 (E) 8

7. Anna draws a picture of some shapes. Her picture contains 3 black triangles and fewer than 4 squares. Which could be Anna's picture?

Anna 在一幅圖中畫了一些形狀。她的照片包含 3 個黑色三角形且少於 4 個正方形。下列哪張可能是 Anna 畫的圖?

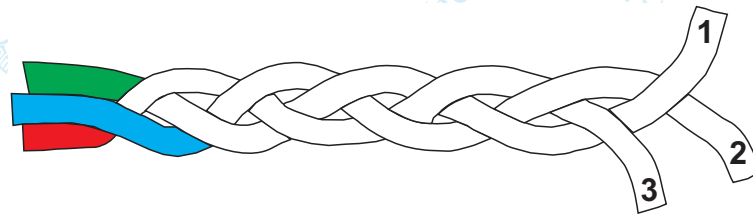
Anna 在一幅圖中畫了一些形狀。她的照片包含 3 個黑色三角形且少於 4 個正方形。下列哪張可能是 Anna 畫的圖?



8. The braid in the figure is composed of three threads. One thread is green, one is blue and one is red. What colours are the three threads?

圖中的麻繩由三根線組成。分別是綠色，藍色和紅色。那麼編號 1、2、3 分別是什麼顏色的?

图中的麻绳由三根线组成。分别是绿色，蓝色和红色。那么编号 1、2、3 分别是什么颜色的?



B: Blue | 藍色 | 蓝色, G: Green | 綠色 | 绿色, R: Red | 紅色 | 红色

- (A) BGR (B) GRB (C) RBG (D) GBR (E) BRG

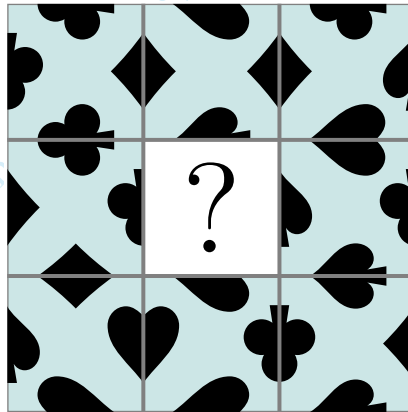
Part 2: 8 problems, 4 points each

第二部分：8 道題目，每題 4 分 | 第二部分：8 道題目，每題 4 分

9. Which piece completes the picture?

為使得整個圖形完整併具有規律，應填入哪一片？

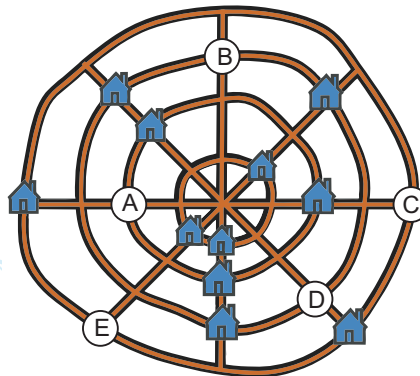
为使得整个图形完整并具有规律，应填入哪一片？



10. A village of 12 houses has four straight roads and four circular roads. The map shows 11 of the houses. On each straight road there are 3 houses. On each circular road there are also 3 houses. Where on the map should the 12th house be put at?

一個有 12 個房屋的村莊，有 4 條直路和 4 條環行路。該地圖顯示了 11 所房屋。在每條直路上都有 3 所房屋。每條環形路上也有 3 所房屋。第十二所房屋應該在地圖上的什麼地方？

一个有 12 个房屋的村庄，有 4 条直路和 4 条环行路。该地图显示了 11 所房屋。在每条直路上都有 3 所房屋。每条环形路上也有 3 所房屋。第十二所房屋应该在地图上的什么地方？

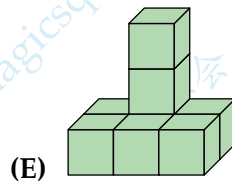
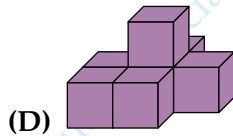
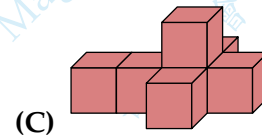
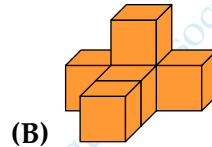
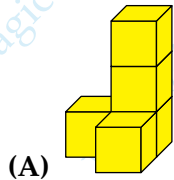


(A) A (B) B (C) C (D) D (E) E

11. Five shapes are made by glueing cubes together face to face. Which shape uses the most cubes?

通過將立方體面與面粘合在一起可以製成五個形狀。下列哪種形狀使用的立方體最多？

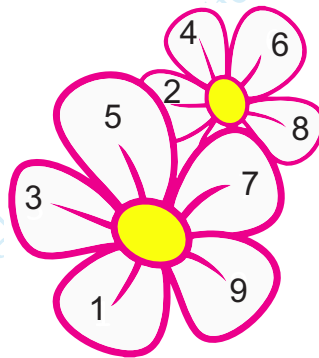
通过将立方体面与面粘合在一起可以制成五个形状。下列哪种形状使用的立方体最多？



12. A number is written on each petal of two flowers. One petal is hidden. The sums of the numbers on the two flowers are equal. What number is written on the hidden petal?

兩朵花的每個花瓣上都寫有數字。一隻花瓣被遮住了。兩朵花上的數字之和相等。被遮住的花瓣上寫著什麼數字？

两朵花的每个花瓣上都写有数字。一只花瓣被遮住了。两朵花上的数字之和相等。被遮住的花瓣上写着什么数字？



(A) 0

(B) 3

(C) 5

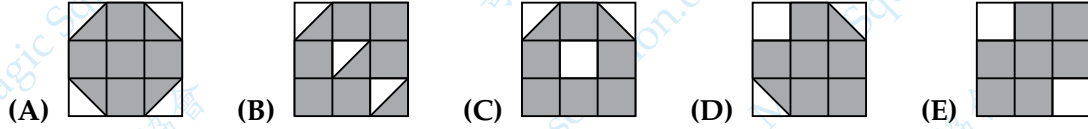
(D) 7

(E) 1

13. In which of the following pictures is more of the shape shaded than any of the others?

以下哪個圖片中的陰影相比較多？

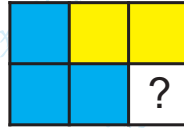
以下哪个图片中的阴影相比较多？



14. Mary wants to write the numbers 1, 2, 3, 4, 5 and 6 inside the six squares of the figure. She wants a different number in each square. She wants both the sum of the numbers in the blue squares and the sum of the numbers in the yellow squares to be 10. What number must she write in the square with the question mark?

Mary 想在下列圖形的六個方格內寫入數字 1、2、3、4、5 和 6。她想在每個方格中寫入不同的數字。她希望藍色方格中的數字總和和黃色方格中的數字總和均為 10。那麼她必須在帶有問號的方格中寫入哪個數字？

Mary 想在下列圖形的六個方格內寫入數字 1、2、3、4、5 和 6。她想在每個方格中寫入不同的數字。她希望藍色方格中的數字總和和黃色方格中的數字總和均為 10。那麼她必須在帶有問號的方格中寫入哪個數字？

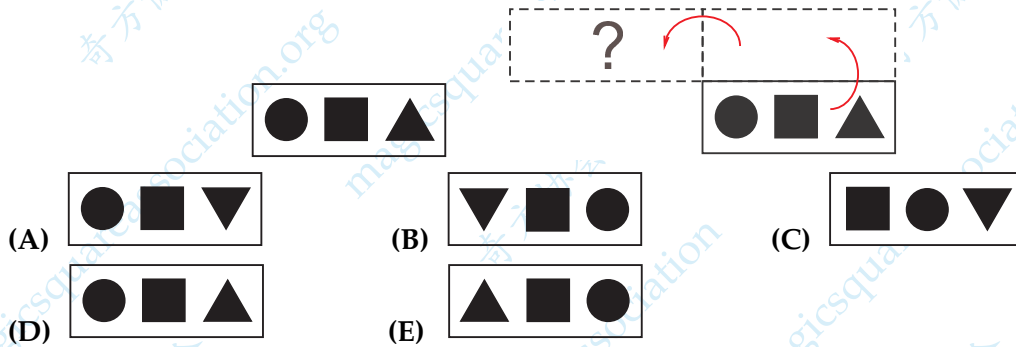


- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

15. A card lies on the table as shown on the left. It is flipped over its top edge then flipped over its left edge, as shown on the right. What does the card look like after the two flips?

如左圖所示，一張卡片放在桌子上。如右圖所示，先將其沿頂部邊緣翻轉，然後沿左側邊緣翻轉。兩次翻轉後，這張卡片看起來是什麼樣子的？

如左图所示，一张卡片放在桌子上。如右图所示，先将其沿顶部边缘翻转，然后沿左侧边缘翻转。两次翻转后，这张卡片看起来是什么样子的？



16. Grandmother has just baked 12 cookies. She wants to give all of the cookies to her 5 grandchildren but also wants to give each of the grandchildren the same number of cookies. How many more cookies should she bake?

祖母已經烤好了12個餅乾。她想將所有餅乾分給她的5個孫子，但還希望給每個孫子的餅乾數量一樣多。她應該再烤製多少個餅乾？

祖母已经烤好了12个饼干。她想将所有饼干分给她的5个孙子，但还希望给每个孙子的饼干数量一样多。她应该再烤制多少个饼干？

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

Part 3: 8 problems, 5 points each

第三部分：8 道題目，每題 5 分 | 第三部分：8 道題目，每題 5 分

17. Tom has 9 cards, as shown below. He puts the cards on the board so that each horizontal line and each vertical line contains three cards with three different shapes and three different number of shapes. He has already put three cards, as shown. Which card does he put on the grey square?

如下圖所示，Tom 有 9 張卡片。他將卡片放在板上，以使每條水平線和豎直線上都有三張卡片，其圖案的形狀不同、數量不同。他已經如圖所示放了三張卡片。他在灰色方格上放的是哪張卡片？

如下图所示，Tom 有 9 张卡片。他将卡片放在板上，以使每条水平线和竖直线 上都有三张卡片，其图案的形状不同、数量不同。他已经如图所示放了三张卡片。他在灰色方格上放的是哪张卡片？

The puzzle consists of a 3x3 grid. The top row contains three cards: one with 3 dots, one with 2 dots, and one with 1 dot. The middle row contains three cards: one with 2 triangles, one with 1 triangle, and one with 0 triangles. The bottom row contains three cards: one with 2 squares, one with 1 square, and one with 0 squares. The grid is partially filled with cards: the top-left cell has a card with 1 dot, the middle-middle cell has a card with 2 dots, and the bottom-left cell has a card with 2 triangles. The bottom-middle cell is shaded grey. Below the grid are five options: (A) a card with 2 squares, (B) a card with 1 triangle, (C) a card with 2 squares, (D) a card with 1 square, and (E) a card with 3 dots.

18. Two identical trains, each with 31 cars, are traveling in opposite directions. When car No. 19 of one train is opposite car No. 19 of the other, which car is opposite car No. 12?

兩列相同的火車，各有 31 節車廂，朝相反的方向行駛。當一列火車的 19 號車廂與另一列火車的 19 號車廂相對時，12 號車廂相對的是哪節車廂？

两列相同的火车，各有 31 节车厢，朝相反的方向行驶。当一列火车的 19 号车厢与另一列火车的 19 号车厢相对时，12 号车厢相对的是哪节车厢？

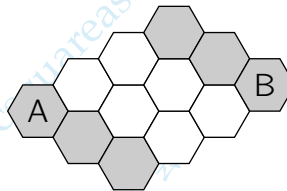
The diagram shows two trains moving towards each other. The top train is moving to the left, with an arrow pointing left. Its cars are numbered 1, 2, 3, 4, 5 from right to left. The bottom train is moving to the right, with an arrow pointing right. Its cars are numbered 5, 4, 3, 2, 1 from left to right. The trains are positioned such that car 19 of the top train is opposite car 19 of the bottom train.

(A) 7 (B) 12 (C) 21 (D) 26 (E) 31

19. Mark the bee can walk only on grey cells. In how many ways could you colour exactly two white cells grey so that Mark can walk from A to B?

被標記的蜜蜂只能在灰色格子上行走。可以有幾種方式恰好將兩個白色格子著色為灰色，以使蜜蜂可以從 A 走到 B?

被标记的蜜蜂只能在灰色格子上行走。可以有几种方式恰好将两个白色格子着色为灰色，以使蜜蜂可以从 A 走到 B?

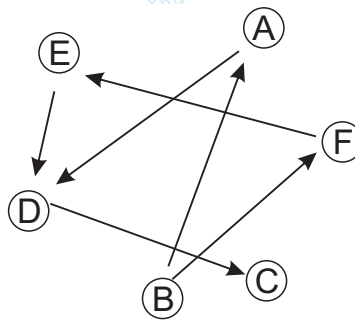


- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

20. An arrow pointing from one person to another means that the first person is taller than the second. For example, person B is taller than person A. Who is the shortest?

從一個人指向另一個人的箭頭表示前者比後者高。例如，B 比 A 高。那麼誰最矮?

从一个人指向另一个人的箭头表示前者比后者高。例如，B 比 A 高。那么谁最矮?



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

21. There are some apples and 8 pears in a basket, each of them green or yellow. There are three more apples than the total number of green fruit. There are 6 yellow pears. How many yellow apples are there in the basket?

一個籃子裡有一些蘋果和 8 個梨，它們皆為綠色或黃色。蘋果比綠色水果多三個。有 6 個黃梨。籃子裡有幾個黃色的蘋果？

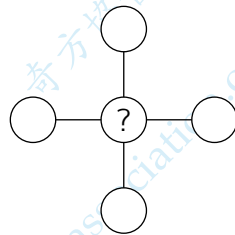
一个篮子里有一些苹果和 8 个梨，它们皆为绿色或黄色。苹果比绿色水果多三个。有 6 个黄梨。篮子里有几个黄色的苹果？

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

22. Roo wrote each of the numbers 1, 2, 3, 4 and 5 in one of the circles so that the sum of the numbers in the row is equal to the sum of the numbers in the column. What number could be written in the circle with the question mark?

Roo 在下列圓圈中分別寫入數字 1, 2, 3, 4 和 5，使得行中的數字總和等於列中的數字總和。帶有問號的圓圈中可以寫什麼數字？

Roo 在下列圓圈中分別寫入數字 1, 2, 3, 4 和 5，使得行中的數字總和等於列中的數字總和。帶有問號的圓圈中可以寫什麼數字？

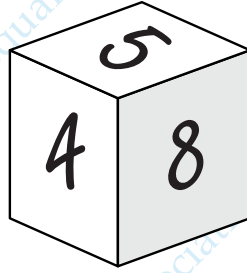


- (A) Only 5 | 只有 5 | 只有 5
 (B) 2, 3 or 4 | 2, 3, 或 4 | 2, 3, 或 4
 (C) Only 3 | 只有 3 | 只有 3
 (D) Only 1 or 3 | 只有 1 或 3 | 只有 1 或 3
 (E) 1, 3 or 5 | 1, 3, 或 5 | 1, 3, 或 5

23. Six different numbers chosen from 1 to 9 are written on the faces of a cube, one number on each face. The sums of numbers on each pair of opposite faces are equal. Which number could be on the face opposite to the face with the number 5?

從 1 到 9，選擇六個不同數字寫在一個立方體的各個面上。每對相對的面上的數字總和相等。與數字 5 相對的那個面上是哪個數字？

从 1 到 9，选择六个不同数字写在一个立方体的各个面上。每对相对的面上的数字总和相等。与数字 5 相对的那个面上是哪个数字？



- (A) 3 (B) 5 (C) 6 (D) 7 (E) 9

24. John and Olivia exchanged sweets. First John gave Olivia as many sweets as Olivia had. Then Olivia gave John as many sweets as John had after the first exchange. After these two exchanges, each had 4 sweets. How many sweets did John have at the beginning?

John 和 Olivia 交換糖果。第一次，John 給 Olivia 的糖果和 Olivia 已有的一樣多。第二次，Olivia 給 John 的糖果數量與第一次交換後 John 剩餘的數量一樣多。經過這兩次交換，每個人都有 4 個糖果。John 一開始有多少個糖果？

John 和 Olivia 交換糖果。第一次，John 給 Olivia 的糖果和 Olivia 已有的一樣多。第二次，Olivia 給 John 的糖果數量與第一次交換後 John 剩餘的數量一樣多。經過這兩次交換，每個人都有 4 個糖果。John 一開始有多少個糖果？

- (A) 6 (B) 5 (C) 4 (D) 3 (E) 2