



# Malaysia International Mathematics Olympiad Competition 2015 TEAM CONTEST

School(学校) : \_\_\_\_\_ Student ID ( 编号 ) : \_\_\_\_\_

Name (姓名): \_\_\_\_\_

1. Can you come up with the nine pairs of positive integer numbers (X, Y) that satisfy this equation ?

请找出满足下面算式的 9 组答案, X,Y 为正整数, 每组答案请写成 (X, Y) 的形式。

$$\frac{XY}{X+Y} = 10$$

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Answers : \_\_\_\_\_

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2. Mrs. and Mr. Lin invited four married couples to a dinner party. In the party, chairs were placed around an L-shaped table as shown in the diagram.

Mrs. Lin arranged the seating so that :

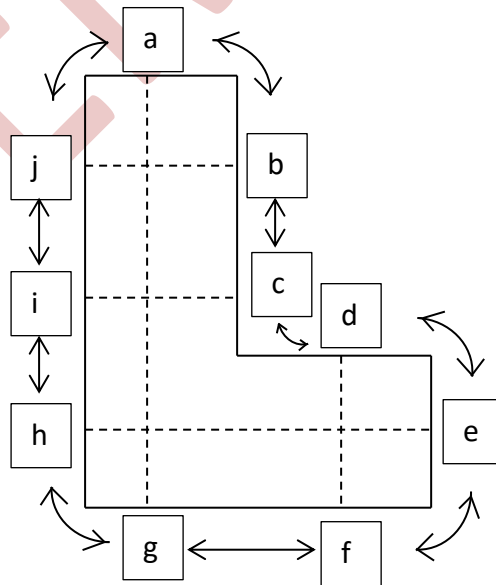
- ( 1 ) Every woman sat next to her husband. ( The arrows between the chairs indicate that they are “next to ” each other. )
- ( 2 ) Every woman sat directly opposite to a man. (Dashed lines indicate chairs are “ directly opposite to ” each other. )
- ( 3 ) Mrs. Lin sat to the right of Mr. Lin.
- ( 4 ) Mrs. Lin was the only woman who did not sit next to a woman.

In which chair – a, b, c, d, e, f, g, h, i, or j – did Mrs. Lin sit ?

林先生和夫人邀请四对已婚夫妇参加一个晚宴。晚宴中，椅子放置在 L 形的桌子周围，如图所示。林夫人安排座位如下：

- (1) 每位太太都与她的丈夫相邻而坐。（座位间的箭头表示相邻的意思）
- (2) 每位女性都与一位男性相向而坐。（座位间的虚线表示“相向”的意思。）
- (3) 林太太坐在林先生的右边。
- (4) 林太太是唯一没有与女性相邻而坐的人。

林夫人是坐在 a, b, c, d, e, f, g, h, i, j 中的哪一个位置？



Answer : \_\_\_\_\_

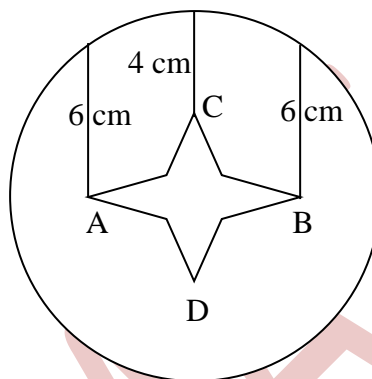
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3. A decoration comprises a symmetrical four-pointed star supported by three threads.  $AB = CD$ . The decoration hangs in the centre of a small circular window:

在小圆形的窗口中心，用三条丝线悬挂了一个四角相互对称的四角星装饰品。  
 $AB = CD$



The central thread is 4 centimetres long, and the outer two are each 6 centimetres long. What is the width  $AB$  of the star ?

中间丝线长 4 厘米，两侧均为 6 厘米长。这个四角星的宽度  $AB$  是多少厘米？

Answer : \_\_\_\_\_

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4. Natural numbers are picked up from 1 in ascending order. One natural number is picked up for the 1<sup>st</sup> time, two natural numbers are picked up for the 2<sup>nd</sup> time, three are pick up for the 3<sup>rd</sup> time, ..., when the 6<sup>th</sup> picking up finishes, do the same according to the rule again. Please find the sum of the 2015<sup>th</sup> pick.

从1开始由小到大按顺序取自然数: 第一次取一个数, 第二次取两个数, 第三次取三个数, 第四次取四个数, 第五次取五个数, 第六次取六个数, 以后继续又按照这个规律每次取一个、两个、三个、四个、五个、六个的方式重复进行。则第2015次取的数的和是多少?

Answer : \_\_\_\_\_

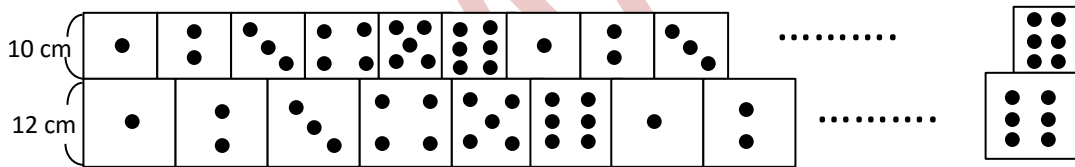
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5. The length of a side of dice is 12 cm and 10cm and they are displayed left-justified as shown in the following figure. Each dice is arranged according to the sequential 1,2,3,4,5,6,1,2, 3,4,5,6, .....  
Following the pattern above, at a point somewhere, “6 spot” of 12 cm dice will be matched at the right alignment by the “6 spot” of 10 cm dice. If you use the number of 12cm dice to count its position, what is the dice’s position number for the first occurrence of the matched, counting from the left?

将边长为 10 cm 的骰子和 12 cm 的骰子按下图那样摆放，并且使左端对齐。每种骰子均按照 1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, …… 这样的点数规律依次重复地摆下去。在某处，12 cm 骰子的 6 点将会与 10 cm 骰子的 6 点右端对齐。如果用 12 cm 骰子的个数来计此位置，第一次将是在从左端数的第几个骰子处？



Answer : \_\_\_\_\_

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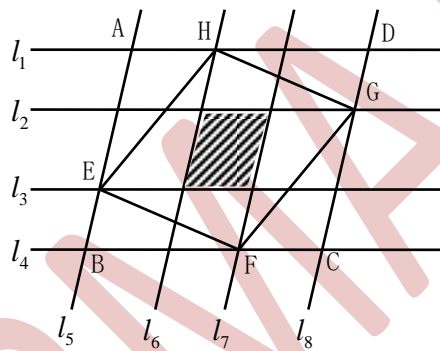
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6. As shown in the figure, the lines are parallel to each other respectively. It is known that the area of the quadrilateral ABCD is  $2015 \text{ cm}^2$  and that of the quadrilateral EFGH is  $1265 \text{ cm}^2$ . What is the area of the shaded portion?

如图，直线  $l_1, l_2, l_3, l_4$  和  $l_5, l_6, l_7, l_8$  分别互相平行，已知四边形 ABCD 的面积是  $2015 \text{ cm}^2$ ，四边形 EFGH 的面积是  $1265 \text{ cm}^2$ ，那么阴影部分的面积是多少？



Answer : \_\_\_\_\_

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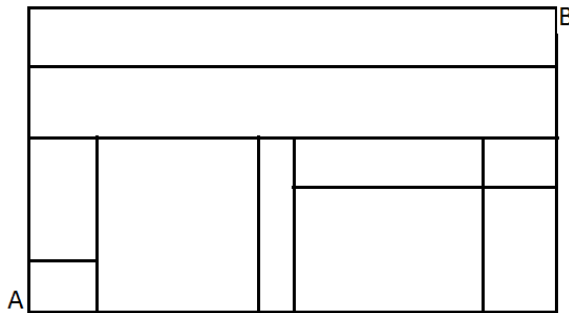
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7. From A to B, you can only turn right and go up, how many the shortest distance are discovered?

从 A 到 B, 只能往右及往上走, 最短的路程有多少种?



Answer : \_\_\_\_\_



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8. In a lucky draws, the organizer prepared a treasure box which contained 5 ping pong balls. Every ping pong balls was labelled with number 1~5. Every children that participated in the games, would drew a ball, recorded the number and returned the ball into the treasure box. Then, the child would make a 2<sup>nd</sup> draw. The child would won the Disney Grand Prize when the 2<sup>nd</sup> ball was having a number that the value is greater than the first number recorded in the first draw. What is the possibility that a child would won the Disney Grand Prize?

在一个抽奖游戏中，主办当局准备了一个宝盒，宝盒里有5粒大小相同的乒乓球，每粒乒乓球各别编上1~5的号码；每位参与抽奖游戏的小朋友先从宝盒里抽出一粒球，把号码记下，把该粒球放回宝盒，再从宝盒里抽出一粒球，若第二次抽到的球的号码大于第一次抽到的球的号码，小朋友就可获得游玩迪斯尼乐园大奖，问获奖的机率是几分之几？

Answer : \_\_\_\_\_

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9. If you are an architect, planning to connect 6 islands with bridges. How many different type of connection you can design? The rule is, every island must at least connects with another island, with the condition where 3 out of the 6 islands have 3 bridges, 2 out of the 6 islands have 2 bridges and one of the island has only 1 bridge connected. (Your solution must include the example below. Simultaneously, reversing the bridge direction in your answer does not count as one solution.)

一夜之間你成為著名的建築師，計劃將六個島嶼用橋梁連接起來，讓每個小島與其它任何一個小島相通，而且其中三個小島各有3座橋梁，2個小島各有2座橋梁，而1個小島只有1座橋梁聯通。請問有多少種不同的途徑（包含例子中的聯通方式）。如圖所示僅僅把另外一個答案做180°反轉不能算作不同的途徑。



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10. The distance between the school and the park is 43km. A, B, C, D four persons were heading to the park from the school. A, B and C were having a speed of 5km per hour, 4km per hour, 2km per hour respectively. D was riding on a motorbike, with the speed of 20km per hour. He could take up a passenger on his bike. How many hours is needed in order for A, B, C, D to reach the park in a shortest time?

学校与公园相距 43 公里，A、B、C、D 四人从学校出发去公园；A、B、C 三人步行的速度分别为每小时 5 公里、4 公里、2 公里。D 骑摩托车，行驶速度是每小时 20 公里，摩托车后座可带一个人。问：四人从学校到公园最少需要多少小时？



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Persatuan Matematik Olympiad Malaysia



**SJK (C) LICKHUNG**  
SEKOLAH BERPRESTASI TINGGI



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E Mathematics Olympiad System

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Answer : \_\_\_\_\_

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