



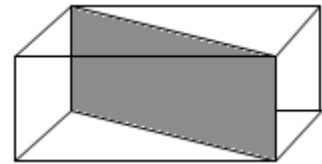
# Malaysia International Mathematics Olympiad Competition 2018 TEAM CONTEST (UP)

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

Name (姓名) : \_\_\_\_\_

1. The figure shows a rectangular tank of length 10m, width 6 m and height 2 m. It is filled with oil. A piece of rectangular divider along the diagonal of the base separates the tank into two sections. If half of the oil in the left section and one-third of the oil in the right section have been used, find the volume of the remaining oil in the tank.

图中是长宽高分别为 10 m、6 m、2 m，装着油的长方体大水箱，用长方形隔板，沿着对角线将水箱分成两部分。若左边的油的一半和右边的油的三分之一被用掉了，那么大水箱里还剩多少油？



Answer : \_\_\_\_\_  $m^3$

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## 2018

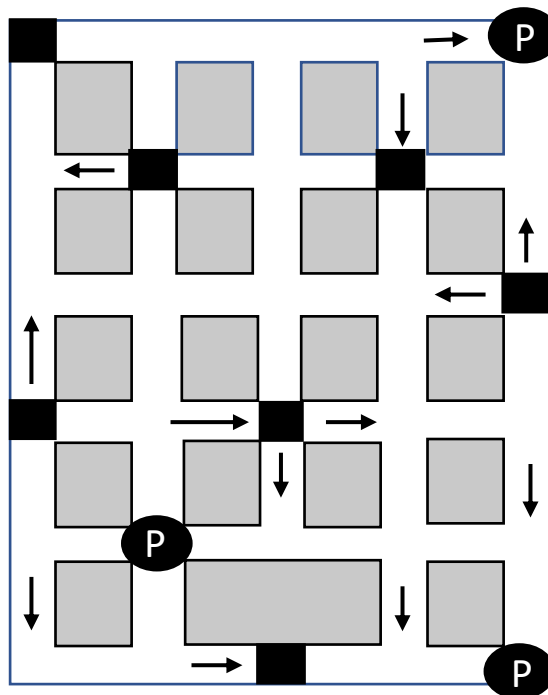
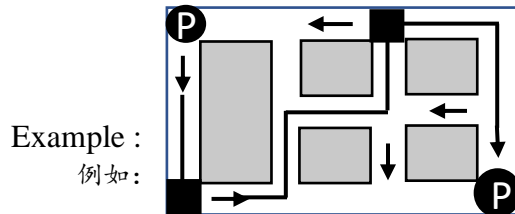
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2. Draw the route that starts at one of the parking spaces (P), passes all shops (black squares), and ends at one of the other parking spaces. The route can pass an unused parking space, but no section, crossing, or fork will be visited twice. The arrows indicate one-way traffic in that particular section only.

自其中任一个停车点 (P) 开始，沿途经过所有商店 (黑色方块)，最后到达另一个停车点 (P) 即可。可以通过一个未使用的停车点 (P)，但不能经过任何一个路口或商店两次，行走路线也不可以重复。箭头表示在该路段的行驶方向。请画出行驶路线。



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



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3. Calculate:  $2018 \frac{1}{2016} \times \frac{2016}{2017} + 218 \frac{1}{216} \times \frac{216}{217} + 18 \frac{1}{16} \times \frac{16}{17} + 8 \frac{1}{6} \times \frac{6}{7}$ .

计算:  $2018 \frac{1}{2016} \times \frac{2016}{2017} + 218 \frac{1}{216} \times \frac{216}{217} + 18 \frac{1}{16} \times \frac{16}{17} + 8 \frac{1}{6} \times \frac{6}{7}$ .

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



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4. Strolling along the river bank, three courting couples saw an inviting restaurant on the other side. On their side was a small rowboat, clearly only capable of taking two at the most. This means someone would be rowing back. No girl, however, was willing to be either in the boat or on the shore with either of the other two men unless her own boyfriend was also present. It took 5 minutes each time crossing the river. What is the least time needed for all the three couples to get across the river and into the restaurant for dinner?

三对恩爱的情侣沿着河岸散步，打算到对岸的一家餐厅用餐。他们这儿只有一艘小船，小船一次只能承载两人。这表示渡河的两人中，其中一人渡河后必须把船划回来，供其他未渡河的人使用。然而，没有女孩愿意在船上或是在岸上与另外两个男人中的任何一个在一起，除非她自己的男朋友在场。如果每次过河需要5分钟。至少需要多少分钟，他们才可以全部都渡河到餐厅用餐？

Answer : \_\_\_\_\_ minutes (分钟)



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5. Five students - A, B, C, D and E appeared for an exam. There were a total of five questions – two multiple choice (a, b or c) and three true/false questions. They answered five questions each as below:

	I	II	III	IV	V
A	c	c	True	True	True
B	c	b	True	True	False
C	a	c	False	True	True
D	b	a	True	True	False
E	b	b	True	False	True

No two students got the same number of correct answers.

Can you tell which are the correct answers? What are their individual scores?

五位学生 A, B, C, D, 和 E 参加考试。共有 5 道题，其中 2 道题是选择题 (a、b 或 c)，3 道题为是非题。每位学生都回答了这 5 道题，答案如下：

	I	II	III	IV	V
A	c	c	是	是	是
B	c	b	是	是	非
C	a	c	非	是	是
D	b	a	是	是	非
E	b	b	是	非	是

没有任何两位学生答对的题数是相同的，请指出每一题的正确答案，这五位学生各答对了多少题？

**Answers :** (1) The correct Answer should be (正确答案应该是):

(I) \_\_\_\_\_ (II) \_\_\_\_\_ (III) \_\_\_\_\_ (IV) \_\_\_\_\_ (V) \_\_\_\_\_

(2) Their individual scores (各答对的题数是):

(A) \_\_\_\_\_ (B) \_\_\_\_\_ (C) \_\_\_\_\_ (D) \_\_\_\_\_ (E) \_\_\_\_\_

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6. Given a book is printed on both sides, and the first sheet includes page 1 and page 2. 2 consecutive sheets have been torn from that book and the sum of the remaining page numbers is 1660. What is the sum of the page numbers of the torn pages ?

书的书页，每张都是采用双面印刷，第一张的正面印着“1”，反面则印着“2”，依序以此类推。这本书的其中连续两张被撕掉了，剩下的页数之和是1660。两张被撕掉的页数之和为多少？

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



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7. A woman took a certain number of eggs to the market and sold some of them. The next day, through her poultry industry, the number left over had been doubled, and she sold the same number as the previous day. On the third day, the new remainder was tripled, and she sold the same number as before. On the fourth day, the remainder was quadrupled, and her sale was the same as before. On the fifth day, what had been left over were quintupled, yet she sold exactly the same as on all the previous occasions and so disposed of her entire stock.

- (1) What is the smallest number of eggs she could have taken to market on the first day?
- (2) How many did she sell daily?

Note that the answer is not zero.

有一位妇人将鸡蛋送到市场去，并且卖出了一些鸡蛋。第二天，因为她的鸡蛋的产量增加，鸡蛋的数量是第一天剩下的2倍，结果卖出的数量和第一天卖出的数量一样多。第三天，因为同样的理由，鸡蛋数量是第二天剩下的3倍，她卖出的数量与之前卖出的数量一样多。第四天，鸡蛋数量是第三天剩下的4倍，卖出的数量与之前卖出的数量一样多。第五天，鸡蛋数量是第四天剩下的5倍，卖出的数量与之前卖出的数量也一样多；这时，鸡蛋刚好卖完。

请问：

- (1) 她第一天至少带了多少个鸡蛋到市场去卖？
- (2) 她每天卖多少个鸡蛋？

请注意，答案不是零。

(1) \_\_\_\_\_ eggs (个)

Answer : (2) \_\_\_\_\_ eggs (个)



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**8.** In the quadrilateral shown, the angles ABC and CDA are both right angles.  $BC = 1\text{ cm}$  and  $CD = 6\text{ cm}$ . Let  $AB = x\text{ cm}$  and  $AD = y\text{ cm}$ .  $x$  and  $y$  are both whole numbers.

(i) Find  $x^2 - y^2$

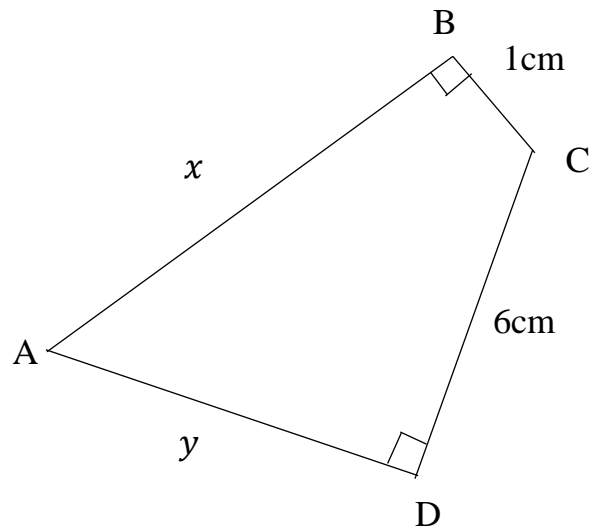
(ii) Find all possible values for the length of sides AB and AD.

如图所示的四边形中，角 ABC 与 CDA 都是直角。BC 边长 1 cm，CD 边长 6cm。

令  $AB = x\text{ cm}$ ， $AD = y\text{ cm}$ 。  $x$  和  $y$  都是整数。

(i) 求  $x^2 - y^2$  之值

(ii) 列出 AB 和 AD 的所有可能之值。



Answer : (i) \_\_\_\_\_

(ii) AB = \_\_\_\_\_

AD = \_\_\_\_\_

\_\_\_\_\_

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9. This is a puzzle game called Petals Around the Rose.

Here are the rules:

1. The name of the game is Petals Around the Rose, and the name is significant.
2. Every answer is zero or an even number.
3. There is one correct answer for every throw of the dice.

What is the answer for Roll #6 ?

这是一个称为“玫瑰花瓣”的益智游戏。游戏条规如下：

1. 游戏的答案与游戏名称有着重大的关系。
2. 每一个答案不是零就是偶数。
3. 每一组骰子的组合只有一个正确的答案。

问第六组骰子的答案。

Roll #1.		Answer = 8
Roll #2.		Answer = 2
Roll #3.		Answer = 0
Roll #4.		Answer = 14
Roll #5.		Answer = 4
Roll #6.		Answer = ?

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

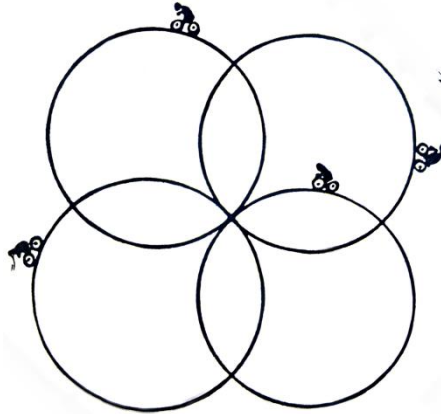
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10. As shown below, four cyclists started cycling around different circular paths with identical circumference of  $\frac{1}{3}$  mile, at 12 noon. They were cycling at an hourly speed of 6 miles, 9 miles, 12 miles and 15 miles respectively. They agreed to cycle non-stop until all met at the center (from which they started) for the fourth time. What time did they finish their ride?

四个圆圈代表四名骑车人在中午开始的行进路径。每个人都骑车围绕一个不同的圆圈行驶，其中，第一个人的速度是每小时6英里，第二个人的速度是每小时9英里，第三个人的速度是每小时12英里，第四个人的速度是每小时15英里。他们从一开始即不断地行驶，直到他们所有的人在中心(起点)第四次相遇。每个圆圈的周长恰好是三分之一英里。那么，他们是几点结束行程？



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