



26th November, 2016 11.10 am – 12.10 pm - Upper Primary Paper-

TEAM CONTEST

Time: 60 minutes

Jointly Organised by:

Persatuan Matematik Olimpiad Malaysia (PERMATO) Sekolah Jenis Kebangsaan (Cina) Lai Meng Bukit Jalil, Kuala Lumpur Sekolah Jenis Kebangsaan (Cina) Lick Hung, Subang Jaya E Mathematics Olympiad System

> 马来西亚数学奥林匹克学会 黎明华文学校 力行国民型华文学校 数学奥林匹克学研中心 联合主办

Instructions:

- Do not turn to the first page until you are told to do so.
- Remember to write down your team name in the space indicated on every page.
- There are 10 problems in the Team Contest, arranged in increasing order of difficulty. Each question is printed on a separate sheet of paper. Each problem is worth 10 points. For all problems only numerical answers are required.
- The four team members are allowed 10 minutes to discuss and distribute the first 8 problems among themselves. Each student must attempt at least one problem. Each will then have 35 minutes to write the answers of their allotted problem independently with no further discussion or exchange of problems. The four team members are allowed 15 minutes to solve the last 2 problems together.
- No calculator or calculating device or electronic devices are allowed.
- Answer must be in pencil or in blue or black ball point pen.
- All papers shall be collected at the end of this test.

For Juries Use Only

No.	1	2	3	4	5	6	7	8	9	10	Total	Sign by Jury
Score												
Score												









TEAM CONTEST (UP)

School (学校):	Student ID	(编号)	:	
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Name (姓名): _____

1. Calculate:
$$1957 \times (\frac{1}{59} - \frac{1}{2016}) + 59 \times (\frac{1}{1957} - \frac{1}{2016}) - 2016 \times (\frac{1}{1957} + \frac{1}{59}) + 3 = ?$$

计算:
$$1957 \times (\frac{1}{59} - \frac{1}{2016}) + 59 \times (\frac{1}{1957} - \frac{1}{2016}) - 2016 \times (\frac{1}{1957} + \frac{1}{59}) + 3 = ?$$

Answer:









TEAM	CONTEST (UP)
School (学校):	Student ID (编号):
Name (姓名):	
91, and then add up the rest number	wn series of numbers: 1,3,5,7, 9, 11, 13,, 87, 89 and rs to make a sum of 2016. Thus what's the difference d the possible minimum values of the products of the
	1、13、…、87、89、91中,选出其中的两个数,然后 么被选中的两个数的乘积可能的最大值与最小值的差
Answer:	







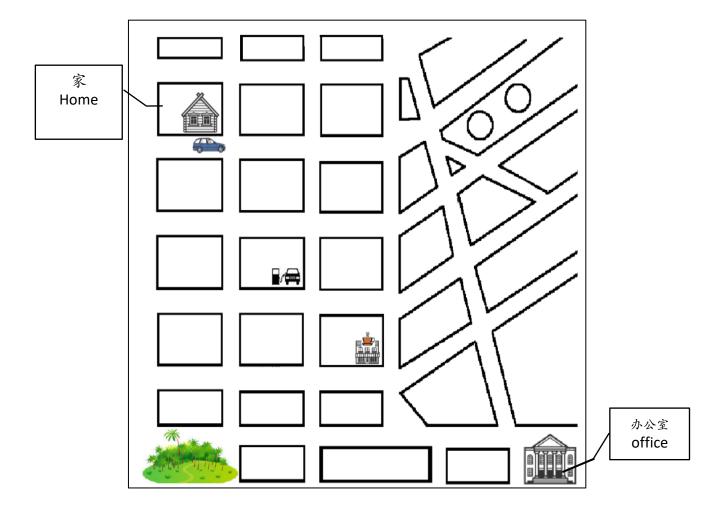


TEAM CONTEST (UP)

School (学校):	 Student ID	(编号):	
Name (姓名):			

3. Before father goes to work every morning, he always stops at the petrol station to refill the fuel tank, and buy a cup of hot coffee and sandwiches before he is heading to office. How many shortest routes for father to transit from home to his office based on the map below?

爸爸每天早上上班,总是先到加油站添油,然后再买一杯热腾腾的咖啡及三明治,才到办公室。下图是有关地图,请问爸爸每天早上可有多少条最短路线从家到达办公室?



Answer	•	



Answer:







cm²

Malaysia International Mathematics Olympiad Competition 2016

TEAM CONTEST (UP)

Name (姓名): 4. The sides' lengths of a quadrilateral are 1cm, 5cm, 5cm and 7cm. Find the greatest area of this quadrilateral. 有一四边形的四条边长分别为 1cm, 5cm, 5cm 及 7cm. 那么它的最大面积可以是多少cm²?	School (学校): Student ID (编号):	
this quadrilateral. 有一四边形的四条边长分别为 1cm, 5cm, 5cm 及 7cm. 那么它的最大面积可以是多少	Name (姓名):	_
cm ² ?	this quadrilateral.	
	cm ² ?	







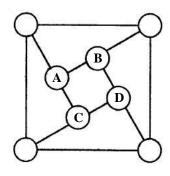


TEAM CONTEST (UP)

School(学校):	Student ID (编号):
Name (姓名):	

5. The figure shown below contains two squares and eight circles, the circles are connected by straight lines. Arrange 1~8 eight different numbers into eight circles and each number can be used only once. If the sums of the numbers on 4 diagonal lines (each line connects 3 circles) are the same, and the sum of the 4 numbers on the big square is the double the sum of the 4 numbers on the small square, find the sum of the four numbers A, B, C, D, on each diagonal line.

如图所示,由两个正方形和八个圆组成,这些圆与圆之间以直线相连。将1~8 这 8 个不同的数字分别填入 8 个圆圈内,每个数字只能使用一次。如果在 4 条对角线上的 3 个数字(连线上 3 个圆圈)的总和是相同的,且大方形上的 4 个数字的和是小正方形上的 4 个数字的和的两倍。那么,对角线上的四个数字 A+B+C+D 之和是多少?



Answer	•	









TEAM CONTEST (UP)				
School(学校):	Student ID (编号):			
Name (姓名):				
the maximum of $\frac{A-B}{A+B}$?	lifferent natural numbers which are less than 2016. So what's 零相异自然数,那么 $\frac{A-B}{A+B}$ 的最大值是多少?			









TEAM CONTEST (UP)

School(学校):	Student ID (编号):
Name (姓名):	

7. In the Pokémon Go games, to allow a Pikachu to be evolved into Raichu (higher level of Pokemon) needs 50 candies. When a trainer successfully catches a Pikachu he will be awarded 3 candies. When he transfers away unwanted Pikachu that he had caught, he will be awarded 1 candy.

Question, How many pikachu minimum a trainer needs to catch in order to evolve the 1st Pikachu into Raichu.

在宝可梦游戏里,要把一只比卡丘升级,需要 50 粒宝可糖。玩家捉一只皮卡丘可以得到 3 粒宝可糖。而且,玩家把捉到的皮卡丘弃之,可以得到 3 1 粒宝可糖。请问,玩家至少需要捉多少只皮卡丘来升级他的第一只皮卡丘呢?











TEAM CONTEST (UP)

School(学校):	Student ID (编号):
Name (姓名):	

8. Muthu and Siti practice running in the sports field. The perimeter of the annular track is 400 m. The distance between point A and point B is 200 meters. Muthu and Siti are starting from the points of A and B at the same time, according to anti-clockwise running. Muthu is running 7m per second, Siti is running 5 m per second, each of them will stop for 5 seconds after running every100 m. How many seconds does Muthu needs to catch up with Siti?

木都和茜蒂两人在爱民学校的操场练习跑步,400米环形跑道上,A、B两点的跑道相距200米,木都和茜蒂两人分别从A、B两点同时出发,按逆时针方向跑步,木都每秒跑7米,茜蒂每秒跑5米,他们每人跑100米都停5秒.那么,木都追上茜蒂需要多少秒?









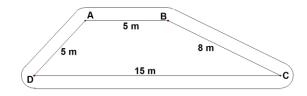


TEAM CONTEST (UP)

School(学校):_	Student ID (编号):
Name (姓名):	

9. The region ABCD is a trapezium where AB is parallel to DC and AB = AD = 5 m, BC = 8 m, DC = 15 m. The trapezium is surrounded by a paved strip with pebbles and has uniform width of 1 m wide. What is the area of the paved strip? ($\pi \approx 3.14$)

梯形 ABCD, AB 平行 DC, AB = AD = 5 m, BC = 8 m, DC = 15 m. 梯形的外围有一条 宽为 1 m 的小路。 求小路的面积。 ($\pi \approx 3.14$)



Answer: ______m²







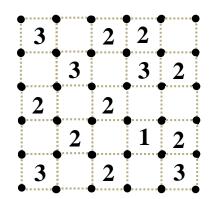


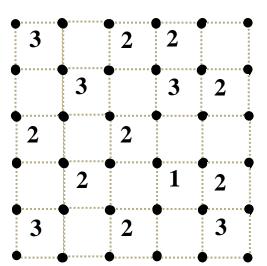
TEAM CONTEST (UP)

School(字校):	Student ID (编号):
Name (姓名):	

10. Please connect the adjacent points in the figure below, and draw a closed loop line. The lines drawn must not cross each other. The lines must not be diagonal. The numbers in the grid represent the number of the square's perimeter that the line has come across.

请将下图中,相邻的点连接起来,画出一条封闭的环状线条,线与线不可以交叉,也不可以斜线。方格中的数字代表线条经过此方格的边数。(例如)Example:





Answer: