Po Leung Kuk

4th Primary Mathematics World Contest

Individual Contest

English Version

PO LEUNG KUK

4th Primary Mathematics World Contest PMWC

INDIVIDUAL CONTEST

1. y is a number that has 8 different factors (including the number 1 and itself). What is the smallest possible value of y?

2. As far as we know, the greatest prime number is $2^{6972593} - 1$. What is the remainder when $2^{6972593} - 1$ is divided by 5?

3. How many whole numbers less than 1000 contain at least one 2 but no 3?

4. Given that $A^4 = 75600 \times B$. If A and B are positive integers, find the smallest value of B.

5. In a language college, 72% students can speak Chinese, 65% students can speak English and 10% students can speak neither Chinese nor English. Find the percentage of students who can speak both Chinese and English.

6. p is the product of two 4-digit numbers formed by the digits 1,2,3,4,5,6,7,8 without any repetition. Find the largest value of p in the form of $\square\square\square\square \times \square\square\square\square$. (You are not required to multiply the numbers).

7. a and b are two numbers that have prime factors 3 and 5 only. a has 12 factors (1 and itself are included), b has 10 factors (1 and itself are included), and their HCF (Highest Common Factor) is 75. What is the LCM (Least Common Multiple) of a and b?

8. A circle and a triangle are placed on intersections of the grid. The circle and the triangle are not allowed to lie on the same vertical and horizontal line. How many total possible ways are there of placing the circle and the triangle? (the following is an example).
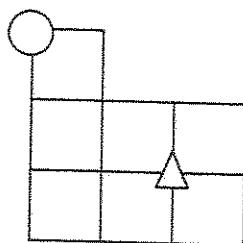

9. Using only odd digits, all possible three-digit numbers are formed. Determine the sum of all such numbers.

10. In the sum $\dfrac{a}{b} + \dfrac{c}{d}$, each letter represents a distinct digit from 1 to 9. The sum is as close as possible to 1 without being greater than or equal to 1. What is the sum?

11. You have a pack of cards, among which are 20 red, 20 yellow, 20 green and 10 blue ones. How many cards would you need to draw out to ensure that you have 12 cards of the same colour?

12. During the rest hour, one of five students (A, B, C, D and E) dropped a glass of water. The following are the responses of the children when the teacher questioned them:

A: It was B or C who dropped it.
B: Neither E nor I did it.
C: Both A and B are lying.
D: Only one of A or B is telling the truth.
E: D is not speaking the truth.

The class teacher knows that three of them NEVER lie while the other two ALWAYS lie. Who dropped the glass?
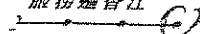
13. In the figure, the squares ABCD and DCEG both have the same area of 64 cm². EFG is a semicircle. The point F is the mid-point of the arc EFG. Find the area of the shaded part. (Assume π = 3.14)
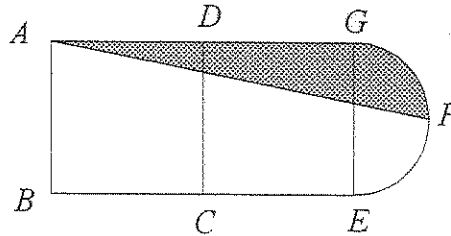
14. A copy machine has the following enlargement / reduction buttons:

250%	200%	128%	125%	100%	50%	10%

The buttons 50%, 100% and 250% are out of order and cannot be used any more. Sam wants to make a copy that is the same size as the original document by using the remaining buttons. When he presses a button, he has to pay $1. What is the minimum amount he has to pay?

15. The sum of several positive integers is 20. Find the largest product that can be formed by these integers.

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PO LEUNG KOK Mathematics Competition 2000
INDIVIDUAL ITEMS

個人賽答案

Questions	Answer	Remark
1	24	
2	1	
3	217	
4	25725	
5	47 (%)	Accepted without the % sign
6	8531x7642 (6519 3902)	Answer in bracket is also accepted
7	16875	
8	108	
9	69375	
10	$\dfrac{71}{72}$	
11	44	
12	C	
13	36.56 (cm^2) $4\pi + 24$ (cm^2)	Both answers are accepted
14	5	
15	1458	