

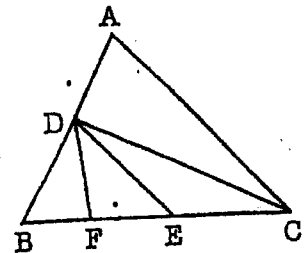
Po Leung Kuk
3rd Primary Mathematics World Contest

Problems for Individual Contest

Po Leung Kuk
3rd Primary Mathematics World Contest
Individual Problem

p.1

1. Simplify $(1 - \frac{1}{3})(1 - \frac{1}{4})(1 - \frac{1}{5}) \dots (1 - \frac{1}{1999})$.
2. In a school of 20 teachers, 10 teach Humanities, 8 teach Social Studies and 6 teach Sciences; 2 teach Humanities and Social Studies, but none teaches Social Studies and Sciences. How many teach Humanities and Sciences, and how many teach only Humanities?
3. If $x^3 = 1999$ and $y^2 = 1999$, where $x, y > 0$, find the number of integers between x and y .
4. If the number $A1999311B$ is divisible by 72, find the difference between A and B .
5. A number N is divisible by 90, 98 and 882 but it is NOT divisible by 50, 270, 686 and 1764. It is known that N is a factor of 9 261 000. What is N ?
6. In $\triangle ABC$, D is the midpoint of AB , E is the midpoint of BC , F is the midpoint of BE and area of $\triangle DCF = 63$ sq. cm. Find the area of $\triangle ABC$.

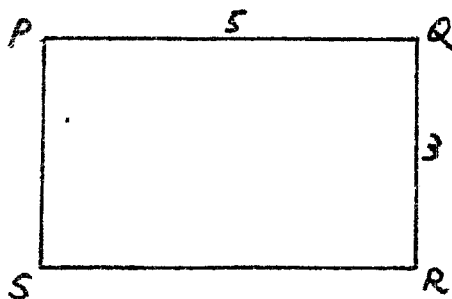


7. A certain number has exactly eight factors, of which 35 and 77 are two. Find the number.
8. $AXXX$ and $XXXB$ are two four-digit numbers, where A , B and X are all distinct. If $\frac{AXXX}{XXXB} = \frac{2}{5}$, find A , B and X .
9. Calculate $1999^2 - (1998^2 - (1997^2 - (1996^2 - \dots(2^2 - 1^2))))$.

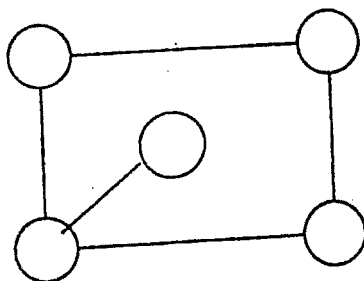
Po Leung Kuk
3rd Primary Mathematics World Contest
Individual Problem

p.2

10. On a rectangular table PQRS of 5 units long and 3 units wide, a ball is rolled from point P at an angle of 45° to PQ and bounces off SR at an angle of 45° . The ball continues to bounce off the sides at 45° until it reaches R. How many times has the ball bounced?



11. A and B play a game of picking up coins from a pile of 1999 coins. A and B take turns alternately with A starting first. In each turn A and B can pick up 1 or 2 or 3 coins. The one who takes the last coin is the loser. How many coins should A pick up in his first turn to ensure that he will be the winner?
12. Find the sum of all the five-digit numbers that can be formed using the digits 1, 2, 3, 4 and 5 (repetition of digits not allowed).
13. How many integers can be expressed as a sum of three distinct integers chosen from the set $\{4, 7, 10, 13, \dots, 46\}$?
14. Five circles are connected as shown. Three different colours are available. Each circle is to be coloured and no two adjacent connected circles can have the same colour. How many different patterns of colouring the circles are possible?



15. Five women are having dinner, sitting around a circular table. Mrs A is sitting between Miss B and Miss C. u is sitting between x and Mrs D. Miss B is between u and y. z is seated with Mrs E on her left and Miss C on her right. Match the surnames with the names.

Po Leung Kuk

3rd Primary Mathematics World Contest

Individual Problem

Problem	Answer
1.	2/1999
2.	2,6
3.	32
4.	1 or -1
5.	4410
6.	168
7.	385
8.	A=2, B=5, X=6
9.	1999000
10.	6
11.	2
12.	3999960
13.	37
14.	36
15.	Mrs A (y) Miss B (x) Miss C Mrs D (z) Mrs E (u)