CYPRUS MATHEMATICAL SOCIETY
REGIONAL COMPETITION
NOVEMBER 2023

PRIMARY – LEVEL 5

Date: 04/11/2023 *Time: 10:00 -12:00*

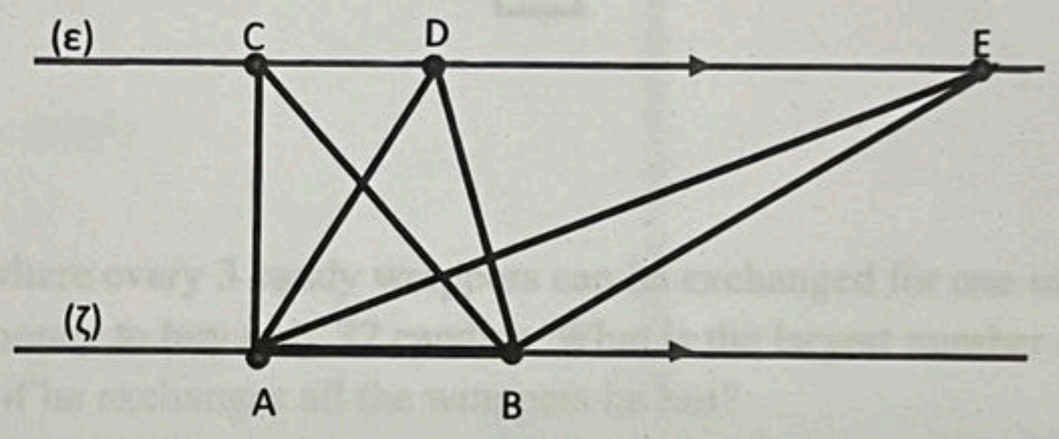
INSTRUCTIONS

1. Solve all the problems by giving full answers.
2. Each problem is marked with 10 points.
3. Write with blue or black ink (Shapes can be drawn with pencil).
4. The use of corrective liquid (Tip-Ex) is not allowed.
5. The use of a calculator is not allowed.

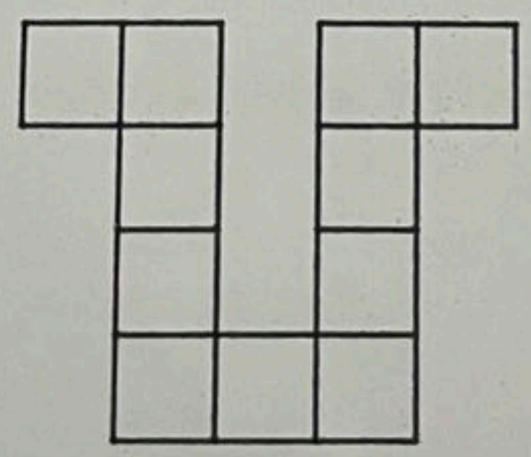
PROBLEMS

Problem 1

a) The lines (ε) and (ζ) are parallel, with the points A and B lie on the line (ζ), and points C, D, and E lie on the line (ε). Compare the areas of the triangles ACB, ADB, or AEB. Fully justify your answer.



b) A garden consists of equal squares as shown in the diagram. If the perimeter of the garden is 144 cm, calculate its area.
Fully justify your answer.

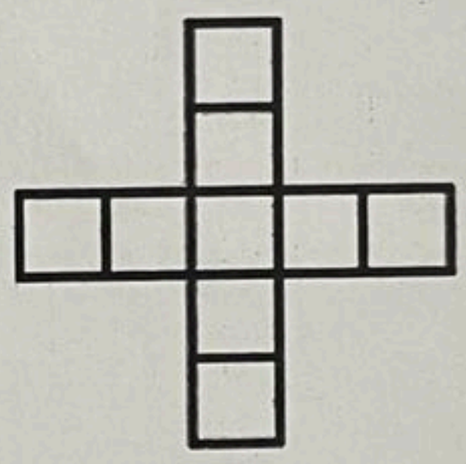


Problem 2

a) In the following alphameric, all different letters stand for different digit from 0 to 9 inclusive. Find the four-digit number PEEL.
Fully justify your answer.

$$\begin{array}{r} \ A\ \ M \\ +\ \ L\ A\ P \\ \hline P\ E\ E\ L \end{array}$$

b) Place all the digits from 1 to 9 inclusive in the squares of the following diagram, so that the sum both horizontally and vertically is equal to 27.
Fully justify your answer.



Problem 3

A shop sells candies where every 3 candy wrappers can be exchanged for one more candy. Andreas has enough money to buy only 37 candies. What is the largest number of candies that he can get from the shop if he exchanges all the wrappers he has?

Problem 4

How many digits are there before the fifteenth 7 of the following sequence of numbers?

Fully justify your answer.

37337333733337333337 ...