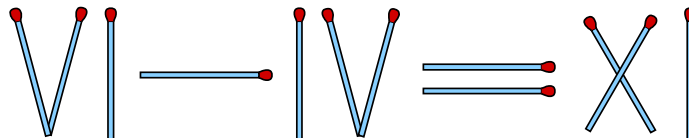


1. Write your solutions on separate pieces of paper.
2. Write your name, your address, name of your school, and the school teacher at the top of each piece of paper you turn in.
3. When solving a problem explain your solution (even if you can only explain part of it, or have only part of a solution). Answers without explanations will receive no credit.

## MANHATTAN MATHEMATICAL OLYMPIAD 2007

### Grades 5-6

1. There are 64 cities in the country Moonland. Prove that there will be at least three of them which will have the same number of rainy days in September 2007.
2. Matches from a box are placed on the table in such a way that they form a (wrong) equality in Roman numbers (each segment on the picture below is a single match). Change a position of exactly one match (without removing or breaking it) and get a correct equality in Roman numbers:



3. A craftsman has 4 oz of paint in order to paint all faces of a cube with the edge equal to 1 in. He cuts the cube into 27 smaller identical cubes. How much more paint does he need in order to paint completely faces of all smaller cubes?
4. Arrange the whole numbers 1 through 15 in a row so that the sum of any two adjacent numbers is a perfect square. In how many ways this can be done?