

1. Write each of your solutions on a separate piece of paper.
2. Write your name, address and the name of your school and school teacher at the top of each piece of paper you turn in.
3. 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 2002

### Grades 5-6

1. You are given a rectangular sheet of paper and scissors. Can you cut it into a number of pieces all having the same size and shape of a polygon with five sides? What about polygon with seven sides?
2. One out of every seven mathematicians is a philosopher, and one out of every nine philosophers is a mathematician. Are there more philosophers or mathematicians?
3. Let us consider all rectangles with sides of length  $a, b$  both of which are whole numbers. Do more of these rectangles have perimeter 2000 or perimeter 2002?
4. Somebody placed digits 1, 2, 3, ..., 9 around the circumference of a circle in an arbitrary order. Reading clockwise three consecutive digits you get a 3-digit whole number. There are nine such 3-digit numbers altogether. Find their sum.