

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 2008

### Grades 5-6

1. What is the minimal number of acute triangles one can cut the regular polygon with 2008 edges? Justify your answer.

2. A boy has as many sisters as brothers, but each sister has only half as many sisters as brothers. How many brothers and sisters are in the family?

3. The teacher asked each of four children to think of a four-digit number. "Now please transfer the first digit to the end and add the new number to the old one. Tell me your results".

Mary: 8,612

Jack: 4,322

Kate: 9,867

John: 13,859.

"Everyone except Kate is wrong", said the teacher. How did he know?

4. There are three closed boxes on a table. It is known that one contains two black balls, another contains one black and one white ball, and the third one contains two white balls. Each box has a sticker: "Two whites", "Two blacks", "One white and one black". It is known that all stickers are wrong. How can one place stickers on the boxes correctly by taking just one ball from one box, and not looking inside?