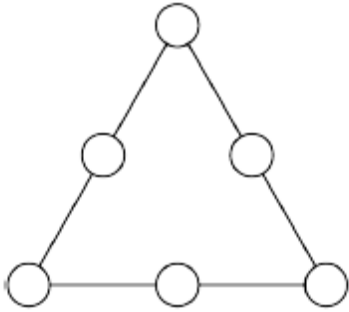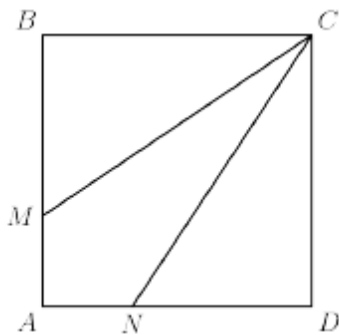# Math 7a: Math Battle

December 19, 2021

1. There are 10 students in a class, and they are given an exam with 10 problems in it. Each student solves a different number of problems and a total of 50 problems are solved by all students together. John solved problems 1-5. Did he also solve some other problem?
2. A 179×57 rectangle is divided into 1×1 squares. If we draw a diagonal in this rectangle, how many squares will it intersect?
3. One line divides a plane into 2 areas. Two lines can divide plane into 4 areas. What is the minimal number of lines to divide a plane into 50 areas?
4. If numbers $10 - 15$ are placed on the sides of the triangle so that each side adds up to the same number, what is the largest sum each side can have?

5. In a square with the side 3, CM and CN divide its area into 3 equal parts. What is the length of CM?

6. A sum of digits in some number is equal to 4701. Is this number a full square of a natural number?