



1. A regular 2015-gon is triangulated by non-intersecting diagonals. Prove that exactly one of those triangles is acute.



2. What is the least number of round shape game pieces with diameter of $\sqrt{2}$ can be placed on a 7×7 square board, so inside every square at least one point was covered by game piece? (Square side length is 1.)



3. Find all the acute angle values α , for which $\sin(\sin \alpha + \alpha) = \cos(\cos \alpha + \alpha)$.



4. Cube plane section formed pentagon. Prove that square on the pentagon is less than the multiple of two its longest sides.



5. Two children in turns write positive integer numbers from 1 to 25 in squares of table 5×5 , so every number can be written only once. If after all the table squares are filled and there is a row or a column where sum of numbers written is 70, then a child who wrote a number first wins, otherwise another child wins. Who can win independently from the opposite side moves? Find the winning strategy.



6. There are 33 children in a class. Everyone in a class was asked how many namesakes and people with the same family name are there in a class (including family members). It was found that all the integer numbers from 0 till 10 were mentioned. Prove that there are a couple of children in a class with the same first name and family name simultaneously.