1.  There are 11 real numbers a1, a2, to a 11, and 0 <= ai (I = 1, …, 11) <= 1. Please prove at least the absolute difference of two numbers would be less than 1/10.

2.  There are 10 natural numbers from 1 to 10. Please prove: if selecting any 6 numbers from the 10 numbers, there must be 2 numbers of the 6 numbers, one number is the other number's multiple.

3.  In a class there are 40 students. Math teacher has 125 different math problems to give to these students. Is there any student will get 4 or more than 4 problems?

4.  In a basket there are balls in red, blue and yellow colors. If everyone takes turn to pull balls from the basket and can take two balls, and no one can pull twice, then how many people should be there to pull the balls to ensure at least two people would have balls in same color.

5.  There is a circle which has been divided to 12 sections from the center. If write 1, 2, to 12 numbers to each of the sections randomly, please prove there must be 3 connecting sections, the sum of the numbers in the 3 sections is 20 or bigger than 20.