1. Two players play a game where each calls a number. The first call is between 1 and 10 and each successive call must be higher than the preceding call by an integer chosen between 1 and 10. Whoever calls 100 wins. Does the first player have a winning strategy?

2. Using the inclusion-exclusion formula, find the area if the spherical triangle on the unit sphere having the angles $\alpha$, $\beta$, $\gamma$.

3. $a$ cows graze $b$ fields bare in $c$ days; $a'$ cows graze $b'$ fields bare in $c'$ days; $a''$ cows graze $b''$ fields bare in $c''$ days. What is the relation between these nine quantities? Assume all the fields provide the same amount of grass, the daily growth of the fields remains constant, and that all the cows eat the same amount each day.

4. Several positive integers are written on the blackboard. One can erase any pair and write their gcd and gcm instead. Prove that eventually the numbers will stop changing.

5. What is the number of distinct regular closed $n$-gons, including self-intersecting ones?

6. Chose any $(n + 1)$-element subset from the set $\{1, \ldots, 2n\}$. Show that this subset must contain 2 integers that are relatively prime.

7. How many edges must a graph with $n$ vertices have to guarantee that it is connected?

8. Determine all polynomials that have only real roots and all coefficients are $\pm 1$. 