Problem #1. Put parentheses in the expression $4 \times 12 + 18 : 6 + 3$ to get lowest possible result.

Problem #2. Sasha numbered chessboard squares (from 1 to 64) in some order. Masha did the same with her board, but the numeration was different. Can it be that the squares of Sasha`s board are connected by the knight movein only case when the squares of Masha`s board with the same numbers are connected by the king move?

Problem #3. Ten guests came to the party and each one left a pair of boots in the hall. All the pairs were of different sizes. The guests started leaving the house one by one putting on any pair of boots that weren`t tight on them (that means each guest could put on the boots that are no smaller in size than his/her own ones). Later on it turned out that none of the remaining guests can find a pair of shoes to leave the place. What is the maximum number of guests that could stay?

Problem #4. An undercube is a cube 2×2×2 from which the angular cube 1×1×1 is cut out. If to remove one of the cubes from a cube of 64 cubes (4×4×4) , we will get a superundercube. Prove that any superundercube can be made of udercubes.

Problem #5. There are 20 teams participated in national soccer championship. What is the lowest number of games can be played in order to make it possible to find 2 teams played to each other among any of three teams.

Problem #6. Two bands of gangsters hunt one another. Each gangster hunts exactly for one opponent, and not less than one opponent hunts for each gangster. All the gangsters of the first band have simultaneously shot at the opponents, all shots struck on the spot, but each 10th gangster missed. After that each survived gangster of the second band shot at the opponent. Could it happen that the first band were all killed?

Problem #7. There are 100 cards numbered from 1 to 100. On each card the statement is written. On the first: «On the cards with the bigger numbers there is only one false statement». On the second: «On the cards with smaller numbers there is only one false statement». On the third: «On the cards with the bigger numbers there are only two false statements». On the fourth: «On the cards with smaller numbers there are only two false statements», etc. How many statements on the cards can be true?

Problem #8. Four boys participated in a race and took places from the first to the fourth. When asked what place each of them took the boys answered the following:

Anton: «Vanja was the first».

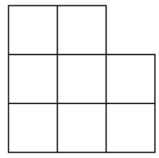
Vanya: «Sasha was the first or the third».

Sasha: «Dima was the first or the fourth».

Dima: «Anton was the third».

It has thus appeared that if the boy told the truth something that was told about him was a lie. And if a boy told a lie something that was told about him was true. Find out which place each of the boys took.

Problem #9. Hooligan Peter cut out eight figures like on the picture from a board 10×10 . Is it always possible to cut out a corner of three checks from the remained board?



Problem #10. There are 2012 cells in the storage room that are numbered from 1 to 2012 and each of the cells contains a suitcase. 2012 porters are numbered from 1 to 2012 and each of the porters has a suitcase. Each porter comes to every cell with a number that is divisible by his number and puts a suitcase in a cell if the cell is empty or takes a suitcase out of the cell if the cell contains a suitcase. How many suitcases are there in the storage room when all the porters have finished?

Problem #11. *p* – prime number greater than 5. Prove that 11111 … 11 (p–1 one) can be divided by *p*

Problem #12. Vasya told his phone number 480135 to Masha. Masha passed it to Julia, Julia passed it to Ivan, Ivan passed it to Misha, Misha passed it to Vova, and Vova gave it Peter. Everyone except Vasya swapped two digits that was next to each other. Whatthehighestpossible value the phone number can be changed to if phone number can't start from 0?

Problem #13. In a city there live "owls" and "larks". Let us call the person strange if more than half of his/her friends have the same way of life as he/she does. In the course of time, if there are strange people left in the city any of them is influenced by his/her friends and changes his/her way of life. Prove that one daythere will be no strange people left in the city.

Problem #14. What the last digit the difference would ends with?

1 x 2 x 3 x 4 x …. x 2010 x 2011 – 1 x 3 x 5 x … x 2009 x 2011?

Problem #15 The plain that flying from Atlanta to Austin departures at 12:00pm and lands at 1:00pm. The plain that flying from Austin to Atlanta departures at 1:00pm and lands at 4:00pm.It takes 18 hours for the train that goes from Austin to Atlanta and it leaves Austin at 8:00am. When it will arrive to Atlanta? (all times are local)

Problem #16. Some civil servants got identical wages. After that from time to time one of them took a part of his money and distributed them between the rests equally. Through some operations like this one of the employees had 24 coins, and another one - 17 coins. How many employees were there?

Problem #17. There is a triangle ABC, in which AB = BC. On the side AB point E is chosen, and on the continuation of the side AC behind the point A point D is chosen so that the corners BDC and ECA are equal. Prove that the areas of the triangles DEC and ABC are equal.