

## 10 Problems for Beginners

1. The vacation started at February 15<sup>th</sup> , and the last day of it was February 27<sup>th</sup>. How many days lasted the vacation?
2. “You shouldn't see that” said the teacher and ordered her 33 pupils “Close your eyes”. Each girl and  $\frac{2}{3}$  of the boys closed their left eye. Each boy and  $\frac{2}{3}$  of the girls closed their right eye. How many pupils did see what they shouldn't see?
3. There is a square pond with 4 palms at the corners of the pond. Can one make a new square pond with doubled area so that the palms still be at the border of the new pond?
4. A family cut a watermelon into 4 pieces and had it eaten. After they ate, there remained 5 pieces of rind. Nobody damaged the rind. How it could happen?
5. A boy says: "The day before yesterday I was 10 years old, and next year I'll have my 13<sup>th</sup> birthday." Can this be true?
6. Arrange 9 points on the plane so that one can draw 10 straight lines each going through 3 points.
7. Alice divided 100 pebbles into 10 piles with distinct amount of pebbles. Can she do it in such a way that any further division of any pile will make some of 11 piles have the same amount of pebbles?
8. Cut a square into equal triangles and construct two smaller squares, using all the triangles.
9. Alice played chess with Bob during 11 days in a row. It happened that for every two days in a row she had more wins then Bob. Can it happen that during 11 days she had in total less wins then Bob?
10. Can one draw 16 diagonals in 16 squares of the chequered  $5 \times 5$  board so that the diagonals neither crossed nor touched each other?

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