Problem 1.

a) Two players are taking turns moving a limp king on a $7 \times 7$ board. A limp king is a chess piece which can move one square to the right or diagonally to the right and up. The player who cannot make a turn loses. Who has a winning strategy?

b) Same problem, but now the limp king can also go up on square.

Problem 2.

Two players are writing a sequence of digits on the board. A player loses if after their turn some number of consecutive digits on the board make a number divisible by 11. Who has a winning strategy?

Problem 3.

Kiselev 239, page 91.

Problem 4.

Kiselev 242, page 91.

Problem 5.

Suppose the circle $\omega$ is tangent to all the sides of the triangle $ABC$ with $AB = BC$. Let $K$ be the midpoint of $AB$ and $L$ be the midpoint of $AC$. Also let $T$ be the intersection of $\omega$ and $KL$. It is known that $T$ does not lie on $AC$. Show that the tangent to $\omega$ at $T$ intersects the angle bisector of $\angle ACB$ on the side $AB$. 