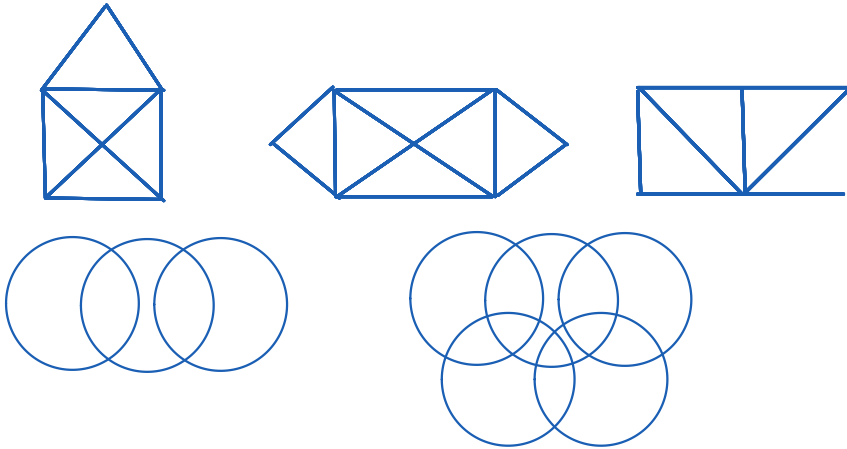


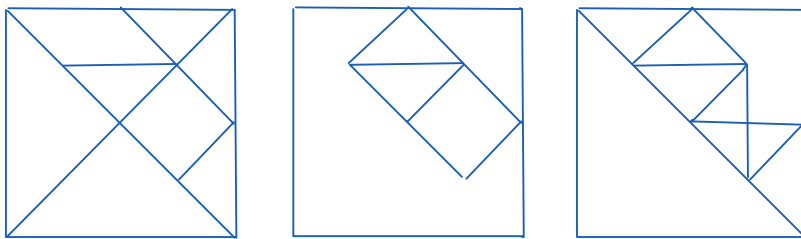
Seminar 12

Hamiltonian graphs and Eulerian graphs

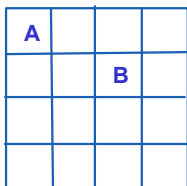
1. Can you draw the following drawings without raising the pen?



- 2 Can the following drawing be cut out by a continuous movement of the scissors, in such a way as to cut out all the delimited geometric figures?



3. Is there a route that the knight moves on a 4×4 chessboard so that it goes through each square of the board only once? What about an $n \times n$ table?
4. On the following 4×4 chessboard, how should we move the rock from A to B , going through each square of the board once?



5. Draw an Eulerian graph $G = (V, E)$ with $|V|$ even and $|E|$ odd or explain why there is no such graph.
6. A mouse eats a $3 \times 3 \times 3$ cube of cheese by tunneling through all of the 27 unit subcubes. If it starts at one corner and always moves on to an uneaten subcube, can it finish at the center of the cube?
7. In a regular icosahedron, the 12 vertices represent students and the edges represent friendships. Is it possible to arrange them at a circular table such that each student sits between two friends?
8. In the domino game the following 8 pieces are left. If we arrange all in a line according to the game rules, which is the sum of the ends?

