

This thesis deals with properties of permutations and three-line latin rectangles. In the first part it offers solutions to several combinatorial problems and derives formula for enumeration of three-line latin rectangles and its simplification based on articles by J. Riordan, but unlike Riordan's articles, without use of generating functions. In the second part it shows algebraic properties of permutation conjugation. Furthermore it provides an algorithm that constructs set of permutations commuting with a given permutation and enumerates orbits of the set of three-line latin rectangles when conjugating by the group of permutations S_n for small n .