Title: Rubik's cube and related puzzles

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Abstract: This thesis deals with the Rubik's Cube from the viewpoint of mathematics. We look into the mathematical rules concerning this famous puzzle and other similar puzzles. Using mathematical tools, we try to answer the question of which Rubik's Cube scrambles can possibly be solved. We learn about various problems preventing us from successfully solving the puzzle. We demonstrate the solution to these problems in a systematic way, separately and using examples. We also find out how many different possible Rubik Cube scrambles exist.

Keywords: Rubik's cube, solvability, permutations, orientations