Abstract: This thesis is dedicated to various choices of basis in Rabin-Miller test. Short overview of similar methods is shown and some properties of structure of the set of strong liars are proved in theoretical part. Selected innovative choices of basis are tested on the set of odd composite numbers in range of 100 and 200 000 000 and the results are compared to results of tests with usual choices of bases. Hypothesis about possible improvement of test through using basis of special form with regard to tested number is proposed. Program used for compu- tations of these results is included. The program allows user to compare results of tests with various ways of choosing basis. The second part of the thesis contains documentation of the program.