

In this thesis we study the computation of the greatest common divisor of two polynomials. Firstly, properties of Sylvester matrices are considered as well as their role in computation. We then note, that this approach can be naturally generalized for several polynomials. In the penultimate section, Bézout matrices are studied as an analogy to the Sylvester ones, providing necessary comparison. Extension for more than polynomials is presented here as well. Algorithms corresponding to the individual approaches are presented as well. Finally, the algorithms are implemented in MATLAB and are compared in numerical experiments.