In this thesis we study especially quadrature formulae based on the Chebyshev expansion, known as the Clenshaw-Curtis quadrature. The first part is focused on the Chebyshev polynomials, their definitions and properties. This knowledge will be used to derivate the Clenshaw-Curtis quadrature. Considerable part of this work is dedicated to comparison of this and the well-known Gauss quadrature both theoretically and practicaly. In the further work we will extend the Clenshaw-Curtis quadrature by the Gegenbauer weight function which gives us new methods for numerical integration. These methods allow us to find a solution of some known problems what will be pointed out also on some numerical experimets.