In this paper there are at first described classical goodness-of-fit tests - the Pearson's $\chi^2$ test and the log likehood ratio test. The more modern method of testing is the family of statistics based on power divergence which is generalisation of classical statistics. Another type of generalisation is the family of disparity statistics which includes beside the family of power divergence also the families BWHD and BWCS. It is demonstrated that all these test statistics have an asymptotic $\chi^2$ distribution. In the program R the exact level and exact power can be calculated for individual tests. Hereafter, moments of test statistics can be derived. On the basis of these comparisons there will be shown which test statistics are the most suitable for the goodness-of-fit tests.