Two-sample tests are commonly used in practice, for example in scientific sphere or financial sectors. The power of test is also an important feature and express probability that the test will reject invalid null hypothesis. In this work we introduce four basic tests in which we compare some parameters of two populations. The reader gets to know with basic terms of hypothesis testing which are necessary for introduction of tests. For each test we use simulation for estimation of the power and observe its behavior with different distributions of samples, ranges or selected null and alternative hypothesis. Based on obtained results we compare chosen tests and discuss suitability for using them in different cases.