

1. From past experience, a teacher finds that the variance of test scores is 76. A random sample of 15 students has a sample variance of 110. Test whether the sample variance is different from the population variance at the 5% level of significance, if the population distributed normally.
2. The sample standard deviation of the weight of a hinge in airscrew A is 0.15 gram. The sample standard deviation of the weight of a hinge in airscrew B is 0.10 gram. Test the hypothesis that in general in A the deviation is more than in B, if in case A where elected 15 hinges and in case B - 20 hinges.
3. A manufacturer claims that the proportion of his products in supermarkets is more, than the proportion of a competitor. In a random sample of 12 supermarkets there are 52% of products of the manufacturer, and in a random sample of 13 supermarkets there are 48% of products of the competitor. Assuming normal distribution test manufacturer's claim at the 5% level of significance.
4. The personnel department did a survey and found that out of the 500 employees who were hired in the last year only 230 stayed. Test the hypothesis that the retention ration is lover than 50 %. Do a 5% test.
5. A professor believes that students majoring in political science are the less likely to vote in elections as students majoring in other disciplines. He collected the following information

Major	Number of voting	Number of students
Political science	75	120
Other	85	100

Test his hypothesis at the 10 percent of significance.