

1. A random sample of 100 observations has a mean of 52 and a standard deviation of 10. Test whether the population mean is 50 at the 5% level of significance.
2. A sample of 12 observations has a mean of 18 and a standard deviation of 3. Test whether the population mean is 20 at the 5% level of significance.
3. The means of two independent large samples of sizes 64 and 81 are 45 and 42 respectively. The standard deviations are 8 and 6. Test whether the difference between the means is significant at 5% level.
4. Two random samples of sizes 8 and 10 have means 16 and 14 and standard deviations 2 and 3 respectively. Test whether the samples come from populations with equal means at 5% level of significance.
5. The weights of 6 persons before and after a diet programme are given below:

 Before: 70, 72, 68, 75, 71, 69
 After: 68, 70, 67, 72, 69, 67

Test whether the diet programme is effective at 5% level of significance.
6. Two samples of sizes 10 and 12 have variances 25 and 16 respectively. Test whether the two populations have the same variance at the 5% level of significance
7. A die is thrown 180 times and the frequencies of the six faces are:
28, 32, 30, 34, 29, 27.
Test whether the die is unbiased at 5% level of significance.
8. A sample of 64 observations has a mean of 25 and a standard deviation of 4. Construct a 95% confidence interval for the population mean
