**Interval Estimation**

1. **A random sample** of size 36 is taken from a normal population with a known variance . If the mean of the sample is 42.6, find 95% confidence limits for the population mean.
2. **Suppose that the** weights of 100 male students of a university represent a random sample of weights of 1546 students of the university. Find 99% confidence intervals for the mean weight of the students, given and .
3. **A random sample** of seven independent observations of a normal variable gave , . Calculate a 90% confidence interval for the population mean.
4. **In 40 tosses of** a coin, 24 heads were obtained. Find 95% confidence limit for the proportion of heads which would be obtained in an unlimited number of tosses of the coin.
5. **A test in statistics** was given to 50 girls and 75 boys. The girls made an average grade of 76 with a standard deviation of 6, while the boys made an average grade of 82 with a standard deviation of 8. Find a 96% confidence interval for the difference where is the mean score of all boys and is the mean score of all girls who might take this test.
6. **Let two independent** random samples, each of size 100, from independent normal distributions and yield , , , . Find a 95% confidence interval for .
7. **Given that**

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And assuming that the two samples were randomly selected from two normal populations in which (but unknown), calculate an 80% confidence interval for the difference between the two population means.

1. **The population of** interest are the voting preferences of all registered voters in Punjab and Sindh. Two independent random samples were taken from these populations and the values , and . Find a 95% confidence interval for .