Hypothesis

1) The mean income of the random sample of 100 employees of an industrial concern was found to be Rs. 3000. If the standard deviation of the population was 25, find the standard error of the mean and also test whether the sample mean differs from the population mean of 2850.

2) A sample of 400 male students is found to have a mean height of 171.38 cm can it be reasonably regarded as a sample from a large population with mean height 171.17 cm and standard deviation 3.3 cm?

3) A certain press hypothesizes that the average life of its largest web press is 14500 hours. They know that the standard deviation of press life is 2100 hours. From a sample of 25 presses, the company finds a sample mean of 13000 hours. At a 0.01 significance level, should the company conclude that the average life of the presses is less than the hypothesized 14500 hours.

4) The valley steel company manufacturers steel bars. If the production process is working properly, it turns out steel bars with mean length of at least 2.8 feet with a standard deviation of 0.2 feet. Longer steel can be used or altered, but shorter bars must be scrapped. You select a random sample of 25 bars, and the mean length is 2.73 feet. If you want to test the null hypothesis at the 0.05 level of significance, what decision would you make?

5) In a sample of 625 persons selected at random from a city, 300 were males. Test the hypothesis that males and females were in equal numbers in city at 1% level of significance.

6) In a random sample of 400 persons from a large population,120 are females can it be said that males and females are in the ratio 5:3 in the population? Use 10% level of significance.

7) A coin is tossed 600 times and heads appear 320 times. Does this result support the hypothesis that the coin is unbiased?

8) The mayor of city claims that only 20% of the families are below poverty level. A concerned citizen's group believes that the percentage is much higher. A random sample of 100 families is taken & found to be below poverty level. At 95% confidence level is their sufficient evidence to reject the mayor's claim?