

Tutorial of Confidence Interval

1. Some 240 out of a random sample of 400 people said they preferred to fly to England rather than go by ferry. Construct a 95% confidence interval for the proportion of people who prefer to fly.
2. In a sample of 500 people who had gone on holidays abroad in the previous year, the mean amount spent on holidays in the that year was €457 with a standard deviation of €183. Use these data to construct a 95% confidence interval for the population mean.
3. The following 6 observations were randomly selected from a population that was known to be normal.
24.2, 25.6, 23.1, 22.5, 24.8, 25.2
Construct a 95% confidence interval for the mean of the population.

Tutorial of Hypothesis-Testing (I)

1. A monthly magazine claims that over 40% of its subscribers have an annual income of over €20,000. In a random sample of 121 subscribers some 60 had incomes in excess of this figure. Use these data to test the magazine's claim at the 5% level.
2. The Tictoc watch company claim that they have 25% of the market share. In a survey of 900 people some 200 people were found to wear a Tictoc watch. Use these data to test Tictoc's claim against the alternative that they have less than a 25% market share.
3. A building contractor buys wire rods from a given supplier and from past experience he knows that the breaking strain of the rods is normally distributed with mean 200 Kg and a standard deviation of 25 Kg. An alternative supplier claims to be able to supply rods of similar quality at a lower cost, and agrees to give a sample of 25 such rods to the builder for test purposes. Amongst these the builder finds a mean breaking strain of 190 Kg. Use this information to construct a test of the hypothesis that the two suppliers produce rods of equal quality against the one tailed alternative that the new supplier's rods are inferior.