1. Let be a random sample of size 40 from a distribution with known variance and unknown mean μ. If= 286.56 and = 10, then what is the 90 percent confidence interval for the population mean μ ?
2. A random sample of 9 observations from a normal population yields the observed statistics = 5 and = 36. What is the 95% confidence interval for μ ?
3. Suppose that X1,...,Xn form a random sample from the normal distribution with unknown mean μ and known variance σ2. How large a random sample must be taken in order that there will be a confidence interval for μ with confidence coefficient 0.95 and length less than 0.01σ?
4. A random sample of 9 observations from a normal population with μ = 5 yields the observed statistics = 39.125 and = 45. What is the 95% confidence interval for ?
5. X1, X2, ... Xn are the sample of independent and uniformly distributed random variables on segment [0; a]. Find the shortest 0.99 confidence interval for a.