EXERCISES IN STATISTICS

Series A, No. 8

1. The value of the mean of a random sample of size 20 from a normal population is $\bar{x} = 81.2$ Find the 95% confidence interval for the mean of the population on the assumption that the variance is $V(x) = 80$.

2. Let $\bar{x}$ be the mean of a random sample of size n from an $N(\mu, \sigma^2)$ population. What is the probability that the interval $(\bar{x} - 2\sigma/\sqrt{n}, \bar{x} + 2\sigma/\sqrt{n})$ includes the point μ?

3. The mean of a random sample of size 17 from a normal population is $\bar{x} = 4.17$. Determine the 90 % confidence interval for the population mean when the estimate variance of the population is 5.76.

4. Let $\bar{x}$ be the mean of a random sample of size n from a distribution which is $N(\mu, \sigma^2)$ where $\sigma^2 = 90$. Find n such that $P(\bar{x} - 1 \leq \mu \leq \bar{x} + 1) = 0.9$ approximately.