The objective of this study is to find the sample size for the approximation of the hypergeometric distribution by the binomial distribution, the approximation of the binomial distribution by the Poisson distribution, and the approximation of the binomial distribution, the Poisson distribution, and the hypergeometric distribution by the normal distribution. To find the sample size in each case is more appropriate than a general case. The criterions are considered in this study such as the approximation of the discrete distribution by the discrete distribution that the given residual values are 0.05, 0.04, 0.03, 0.02, 0.01, 0.005, and 0.001 and the approximation of the discrete distribution by the continuous distribution that the given significance levels are 0.01, 0.05, and 0.10.

The conclusions of this study are as follows:

1. The hypergeomatric distribution can be approximated by the binomial distribution when the parameter of the hypergeometric distribution, n/N, is small. The proportion of sample size to population size, n/N, is concluded for using.

2. The binomial distribution can be approximated by the Poisson distribution when the parameters of the binomial distribution, n, is large, and p is near 0. The values of n and p are concluded for using.

3. The binomial distribution can be approximated by the normal distribution when the parameter of the binomial distribution, n, is large. The approximation is good for value of p near 0.5. By the way, the approximation is not so good for value of p near 0 or 1, but it is better when value of n increases. The values of n and p are concluded for using.

4. The Poisson distribution can be approximated by the normal distribution when the parameter of the Poisson distribution, λ, is large. The value of λ is concluded for using.

5. The hypergeometric distribution can be approximated by the normal distribution when the parameter of the hypergeometric distribution, n, is large. The approximation is good for M/N near 0.5. By the way, the approximation is not so good for M/N near 0 or 1, but it is better when value of n increases. The values of $n, M,$ and N are concluded for using.

ภาควิชา...........สถิติ...........................   ลายมือชื่อนิสิต.........ภารย์นก ....

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