

The main aim of the presented thesis is to derive properties of the random variable representing the cardinality of intersection of independent random samples (without replacement) from a finite population. Besides basic properties, such as exact probability distribution, central and factorial moments, we also study convergence of the moments and convergence of the probability distribution (under certain conditions) to Poisson and normal distribution. The asymptotic properties appear to be useful because the exact distribution is rather difficult to deal with. A simulation study designed to investigate the accuracy of Poisson and normal approximations to the exact probability distribution is also presented.