

On some problems in group theory of probabilistic nature

Abstract

The determination of the abelianness of a nonabelian group has been introduced for symmetric groups by Erdos and Turan in 1968. In 1973, Gustafson did the same for finite groups while MacHale determined the abelianness for finite rings in 1974. Basic probability theory will be used in connection with group theory. This paper will focus on the 2-generator 2-groups of nilpotency class 2 based on the classification that has been done by Kappe et.al in 1999. In this paper some results on $P_n(G)$, the probability that the n th power of a random element in a group G commutes with another random element from the same group, will be presented.