

Title: Some considerations on the n -th commutativity degrees of finite groups

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Abstract: Let G be a finite group and n a positive integer. The n -th commutativity degree $P_n(G)$ of G is the probability that the n -th power of a random element of G commutes with another random element of G . In 1968, P. Erdos and P. Turan investigated the case $n = 1$, involving only methods of combinatorics. Later several authors improved their studies and there is a growing literature on the topic in the last 10 years. We introduce the relative n -th commutativity degree $P_n(H, G)$ of a subgroup H of G . This is the probability that an n -th power of a random element in H commutes with an element in G . The influence of $P_n(G)$ and $P_n(H, G)$ on the structure of G is the purpose of the present work.