Discussiones Mathematicae
General Algebra and Applications 39 (2019) 35–??
doi:10.7151/dmgaa.1305

A NEW CHARACTERIZATION OF PROJECTIVE SPECIAL UNITARY GROUPS $PSU_3(3^n)$

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Abstract

One of an important problems in finite groups theory, is characterization of groups by specific property. However, in the way the researchers, proved that some of groups by properties such as, elements order, set of elements with same order, graphs, ..., are characterizable. One of the other methods, is group characterization by using the order of group and the largest elements order. In this paper, we prove that projective special unitary groups $PSU_3(3^n)$, where $3^{2n}-3^n+1$ is a prime number, can be uniquely determined by the order of group and the second largest elements order.

Keywords: element order, the largest elements order, the second largest elements order, projective special unitary group.

2010 Mathematics Subject Classification: Primary 20D06; Secondary 20D60.

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Received 5 September 2018
Revised 5 October 2018
Accepted 4 January 2019