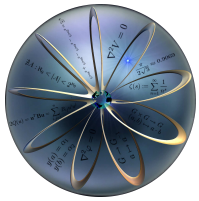

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order (of a group)

Canonical name	OrderofAGroup
Date of creation	2013-03-22 12:36:47
Last modified on	2013-03-22 12:36:47
Owner	mathcam (2727)
Last modified by	mathcam (2727)
Numerical id	9
Author	mathcam (2727)
Entry type	Definition
Classification	msc 20A05
Synonym	order
Related topic	Group
Related topic	Cardinality
Related topic	OrdersOfElementsInIntegralDomain
Related topic	OrderRing
Related topic	IdealOfElementsWithFiniteOrder
Defines	finite group
Defines	infinite order
Defines	order (of a group element)

The *order* of a group G is the number of elements of G, denoted $|G|$; if $|G|$ is finite, then G is said to be a *finite group*.

The *order* of an element $g \in G$ is the smallest positive integer n such that $g^n = e$, where e is the identity element; if there is no such n, then g is said to be of *infinite order*. By Lagrange's theorem, the order of any element in a finite group divides the order of the group.