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Sylow p-subgroup

Canonical name	SylowPsubgroup
Date of creation	2013-03-22 12:50:59
Last modified on	2013-03-22 12:50:59
Owner	Henry (455)
Last modified by	Henry (455)
Numerical id	8
Author	Henry (455)
Entry type	Definition
Classification	msc 20D20
Synonym	Sylow subgroup
Synonym	Sylow group
Related topic	SylowTheorems
Related topic	ProofOfSylowTheorems
Related topic	PPrimaryComponent
Related topic	SylowsThirdTheorem
Defines	Sylow p-subgroup
Defines	p-subgroup

If  $(G, *)$  is a group then any subgroup of order  $p^a$  for any integer  $a$  is called a *p-subgroup*. If  $|G| = p^a m$ , where  $p \nmid m$  then any subgroup  $S$  of  $G$  with  $|S| = p^a$  is a *Sylow p-subgroup*. We use  $\text{Syl}_p(G)$  for the set of Sylow p-groups of  $G$ .

More generally, if  $G$  is any group (not necessarily finite), a Sylow p-subgroup is a maximal  $p$ -subgroup of  $G$ .