



Math for the people, by the people.

p -subgroup

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Defines	Sylow p -subgroup
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Let G be a finite group with order n , and let p be a prime integer. We can write $n = p^k m$ for some k, m integers, such that k and m are coprimes (that is, p^k is the highest power of p that divides n). Any subgroup of G whose order is p^k is called a Sylow p -subgroup.

While there is no reason for Sylow p -subgroups to exist for any finite group, the fact is that all groups have Sylow p -subgroups for every prime p that divides $|G|$. This statement is the First Sylow theorem

When $|G| = p^k$ we simply say that G is a p -group.