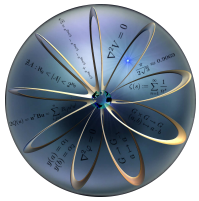

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Sylow theorems

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Let G be a finite group whose order is divisible by the prime p. Suppose p^m is the highest power of p which is a factor of $|G|$ and set

$$k = \frac{|G|}{p^m}.$$

Then

1. the group G contains at least one subgroup of order p^m,
2. any two subgroups of G of order p^m are conjugate, and
3. the number of subgroups of G of order p^m is congruent to 1 modulo p and is a factor of k.