Fitting's theorem

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Defines	Fitting group

Fitting's Theorem states that if G is a group and M and N are normal nilpotent `http://planetmath.org/Subgroup`subgroups of G, then MN is also a normal nilpotent subgroup (of nilpotency class less than or equal to the sum of the nilpotency classes of M and N).

Thus, any finite group has a unique largest normal nilpotent subgroup, called its *Fitting subgroup*. More generally, the Fitting subgroup of a group G is defined to be the subgroup of G generated by the normal nilpotent subgroups of G; Fitting's Theorem shows that the Fitting subgroup is always locally nilpotent. A group that is equal to its own Fitting subgroup is sometimes called a *Fitting group*.