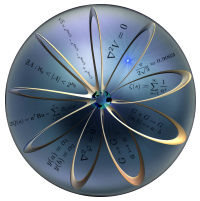

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## subnormal series

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|---|---|
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| Related topic | Solvable |
| Related topic | DescendingSeries |
| Related topic | AscendingSeries |
| Defines | composition series |
| Defines | normal series |
| Defines | principal series |
| Defines | chief series |

Let $G$ be a group with a subgroup $H$, and let

$$G = G_0 \rhd G_1 \rhd \cdots \rhd G_n = H \tag{1}$$

be a series of subgroups with each $G_i$ a normal subgroup of $G_{i-1}$. Such a series is called a *subnormal series* or a *subinvariant series*.

If in addition, each $G_i$ is a normal subgroup of $G$, then the series is called a *normal series*.

A subnormal series in which each $G_i$ is a maximal normal subgroup of $G_{i-1}$ is called a *composition series*.

A normal series in which $G_i$ is a maximal normal subgroup of $G$ contained in $G_{i-1}$ is called a *principal series* or a *chief series*.

Note that a composition series need not end in the trivial group 1. One speaks of a composition series (1) as a *composition series from $G$ to $H$*. But the term *composition series for $G$* generally means a composition series from $G$ to 1.

Similar remarks apply to principal series.

Some authors use normal series as a synonym for subnormal series. This usage is, of course, not compatible with the stronger definition of normal series given above.