

Group $(G,*)$

Ring

Group $(G,+)$

Monoid $(G,*)$

- Distribution $(*)$ over $(+)$

Module

Group $(M,+)$

Ring $(R,*,\hat{+})$

- $R_{\text{mon}} @ M$ with $"."$

- Distribution of $"."$ over $(+)$

Algebra

Ring $(M,+, \times)$

Field $(F, +, *)$

- (M_g, F) is a vector space

- \times in M_{mon} satisfies homogen cond.