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Section:

2. Algebra

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Maximal subgroups of $GL_1(D)$

Let D be an F-central division algebra of index m. Denote by $D^* = GL_1(D)$ the multiplicative group of D. Maximal subgroups of D^* are investigated. It is shown that, except in some pathalogical cases, D^* contains maximal subgroups of finite index. Given a maximal subgroup M of D^*, it is shown that M contains an element not in F which is separable over F provided that the characteristic of D does not divide m. It is also proved that if M is torsion, then $D = F$.

Reference: M. Mahdavi-Hezavehi, On derived groups of division rings, *Communications in Algebra* , Vol.23(3), 913-926(1995).