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unit

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Defines	algebraic unit

Let R be a ring with multiplicative identity 1. We say that $u \in R$ is an unit (or unital) if u divides 1 (denoted $u \mid 1$). That is, there exists an $r \in R$ such that $1 = ur = ru$.

Notice that r will be the multiplicative inverse (in the ring) of u , so we can characterize the units as those elements of the ring having multiplicative inverses.

In the special case that R is the ring of integers of an algebraic number field K , the units of R are sometimes called the *algebraic units* of K (and also the units of K). They are determined by Dirichlet's unit theorem.