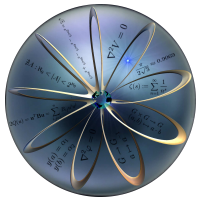

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separable

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Defines	separable
Defines	separable polynomial
Defines	separable extension

An irreducible polynomial $f \in F[x]$ with coefficients in a field F is *separable* if f factors into distinct linear factors over a splitting field K of f.

A polynomial g with coefficients in F is *separable* if each irreducible factor of g in $F[x]$ is a separable polynomial.

An algebraic field extension K/F is *separable* if, for each $a \in K$, the minimal polynomial of a over F is separable. When F has characteristic zero, every algebraic extension of F is separable; examples of inseparable extensions include the quotient field $K(u)[t]/(t^p - u)$ over the field $K(u)$ of rational functions in one variable, where K has characteristic $p > 0$.

More generally, an arbitrary field extension K/F is defined to be *separable* if every finitely generated intermediate field extension L/F has a transcendence basis $S \subset L$ such that L is a separable algebraic extension of $F(S)$.