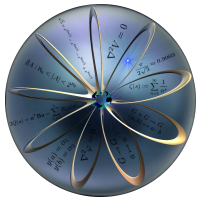

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algebraic

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Let K be an extension field of F and let $a \in K$.

If there is a nonzero polynomial $f \in F[x]$ such that $f(a) = 0$ (in K) we say that a is *algebraic over* F.

For example, $\sqrt{2} \in \mathbb{R}$ is algebraic over $\mathbb{Q}$ since there is a nonzero polynomial with rational coefficients, namely $f(x) = x^2 - 2$, such that $f(\sqrt{2}) = 0$.

If all elements of K are algebraic over F, one says that the *field extension* K/F is *algebraic*.