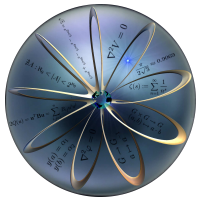

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## simple transcendental field extension

| | |
|---|---|
| Canonical name | SimpleTranscendentalFieldExtension |
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| Synonym | simple infinite field extension |
| Related topic | FunctionField |

The extension field $K(\alpha)$ of a base field $K$, where $\alpha$ is a transcendental element with respect to $K$, is a *http://planetmath.org/SimpleFieldExtensionsimple transcendental extension of* $K$. All such extension fields are isomorphic to the field $K(X)$ of rational functions in one indeterminate $X$ over $K$, and thus to each other.

**Example.** The subfields $\mathbb{Q}(\pi)$ and $\mathbb{Q}(e)$ of $\mathbb{R}$, where $\pi$ is `http://planetmath.org/Pi`Ludolph's constant and $e$ Napier's constant, are isomorphic.