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Boolean-valued function

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Synonym	characteristic function
Synonym	indicator function
Synonym	predicate
Synonym	proposition
Related topic	BooleanDomain
Defines	Boolean function

A **Boolean-valued function** is a function of type $f : X \rightarrow \mathbb{B}$, where X is an arbitrary set and where \mathbb{B} is a Boolean domain.

A **Boolean function** (of finite arity k) is a Boolean-valued function of type $f : \mathbb{B}^k \rightarrow \mathbb{B}$.

In some contexts a Boolean-valued function may be referred to as a *predicate* or a *proposition*. In other contexts these terms may be used to describe the syntactic entities that denote or express Boolean-valued functions, or that have Boolean-valued functions among their canonical or intended <http://planetmath.org/Modelmodels>. When necessary to avoid confusion, terms like *propositional expression* or *predicate formula* may be used to distinguish <http://planetmath.org/SignRelationsigns> from their objects.