



Real Optimizers

1 Why

Often the chain considered in optimization is the real numbers.

2 Definition

A function from a non-empty set to the real numbers, in the context of optimizers, is called an *objective function* for the *feasible set* (its domain). Suppose the feasible set is a subset of real numbers. Often we can specify a function defined for every real number. The *objective function* is the restriction of this function to those elements which are *feasible*.

3 Notation

Let D be a non-empty set, a mnemonic for "domain." Let $f : D \rightarrow \mathbf{R}$. Often we have $g : A \rightarrow \mathbf{R}$, where $D \subset A$. So f is the restriction of g to the feasible set D . In this case the language feasible set language is especially useful, as an correspond to a minimal element of $g(A)$, a larger set than $g(D)$. In this case, it is useful to speak of feasible elements.