



Math for the people, by the people.

index set

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In computability theory, a set $A \subseteq \omega$ is called an *index set* if for all x, y ,

$$x \in A, \varphi_x = \varphi_y \implies y \in A.$$

φ_x stands for the partial function with Gödel number (or index) x .

Thus, if A is an index set and $\varphi_x = \varphi_y$, then either $x, y \in A$ or $x, y \notin A$. Intuitively, if A contains the Gödel index x of a partial function φ , then A contains all indices for the partial function. (Recall that there are \aleph_0 Gödel numbers for each partial function.)

It is instructive to compare the notion of an index set in computability theory with that of an *indexing* set.