COMPLEXITY

Thus far we have examined the nature of computation by specifying exactly what we mean by computable and then going a step further and becoming aquainted with several things that are not computable. This was interesting and somewhat useful since we now have a better idea about what is possible and what tasks we should avoid. But we need to delve into issues closer to actual, real-world computation. This brings up the issue of computational cost.

In order to examine this we shall develop a framework in which to classify tasks by their difficulty and possibly identify things that require certain amounts of various resources. In addition we shall discover properties of computational problems which place them beyond our reach in a practical sense. To do this we will examine decision properties for classes of recursive sets and functions with an emphasis opon the difficulty of computation.

The sections include: