Theory of Computation

Theory of a Computer, in terms of

Input → Computation → Output

Alan Turing

Martin Heidegger - A "Nazi Asshole" but a good philosopher.

What is Theory of Computation about?

Machines and the languages recognized by these machines

Finite Automata - Recognizes regular languages.

Alan Turing
Alonzo Church

Decision Problem → Yes or no Answer
(But not all programs will necessarily have this output.)

Turing proved that the decision problem is unsolvable. (1936)

Restricted Decision Problem (Entscheidungs Problem)

Logical formula → First order Logic → True or False Answer

Logical variables and quantifiers

Kurt Gödel → Incompleteness Theorems

There are two Incompleteness Theorems

1. There are no consisted set of axioms which are recursively enumerable such that all true theorems of arithmetic can be proven

2. Such set of axioms cannot prove it is consistent.