Lecture #16: Proofs of Undecidability — Examples I
What Will Happen During the Lecture

Remember... You Had Homework!

Students were asked to work through the following set of lecture notes before this lecture.

- Lecture Notes — "Proofs of Undecidability — Examples I".

As always, you may attend the lecture presentation if you have not worked through this material ahead of time — but it will not be repeated for you, and you might get a little bit lost, during the presentation, if you haven't worked through this.

Problems To Be Solved

The previous lecture presentation included a consideration of some *incorrect* uses of reductions, to try to prove that
$$A_{TM} \preceq_M HALT_{TM}.$$

This presentation will introduce a (short) process to develop a many-one reduction that can be used to show that a language is undecidable (or, even, unrecognizable) — when the problem is a bit too long, or complicated, to be included on a *test* in this course, but when the problem could be given on an *assignment* in this course.

This will be applied to establish that $A_{TM} \preceq_M HALT_{TM}$.