

Lecture #18: Introduction to Post's Problem

What Will Happen During the Lecture

Remember... You Had Homework!

Students were asked to have worked through a set of notes before this first lecture:

- Lecture Notes — “Introduction to Post's Problem”

Of course, 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 during the lecture presentation.

Topic To Be Discussed

In order to become more familiar with “ m -degrees”, we will consider the following questions.

- Do there exist m -degrees that are *incomparable*? That is, do there exist sets $S, T \subseteq \mathbb{N}$ such that $S \not\leq_m T$ and $T \not\leq_m S$?
- For all sets $S, T \subseteq \mathbb{N}$ does there exist a set $U \subseteq \mathbb{N}$ such that $S \leq_m U$, $T \leq_m U$ and for all sets $V \subseteq \mathbb{N}$, if $S \leq_m V$ and $T \leq_m V$, then $U \leq_Q V$ — so that the m -degree of U would serve as a kind of “least upper bound” for the m -degrees of S and T ?

These problems can be thought of as “puzzles”: The sets, that are being asked about, exist — and have already been introduced in lectures.