

## Problems of the Week – 7 & 8

### NL-Completeness

Prove the following problem is NL-complete.

Given a regular expression  $r$ , is the language of  $r$  empty?

### PSPACE-Completeness

Prove that the following problem is PSPACE-complete.

Given a Turing Machine  $M$  and input  $w$ , determine whether  $M$  accepts  $w$  without ever moving its head beyond the first  $|w|$  symbols of the tape.