Problem 1
Consider the problem of determining whether a Turing machine $M$ on an input $w$ ever attempts to move its head left when its head is on the left-most tape cell. Formulate this problem as a language and show that it is undecidable.

Problem 2
Consider the problem of determining whether a Turing machine $M$ on an input $w$ ever attempts to move its head left at any point during its computation. Formulate this problem as a language and show that it is decidable.

Problem 3
Suppose $A$ and $B$ are languages and $A \leq_m B$

Prove that if $A$ is undecidable, then $B$ is undecidable.