Problem 9.1
Consider the program
\[ P = \{ \neg p \leftarrow \sim p \} \]

- Compute \( P|_{\emptyset}, P|_{\{p\}}, P|_{\{\neg p\}} \)
- Present all answer sets of \( P \).

Problem 9.2
Consider the program
\[ P = \{ p \leftarrow \sim q, p \leftarrow \sim \neg p, q \leftarrow p \land \sim q, p \leftarrow, q \leftarrow \} \]

- Compute all answer sets of \( P \).
- What happens if we delete \( q \leftarrow \) from \( P \)?

Problem 9.3
Proof that answer set programming is non-monotonic.

Problem 9.4
Write a answer set program that corresponds to the following specification:

\( X \) can fly, if \( X \) is a bird, nothing abnormal is the case, and we can safely assume that \( X \) can fly. One abnormal situation is that \( X \) is a penguin.

Problem 9.5
Proof that the program presented in slide 46 has an answer set if and only if the graph \( G \) has a Hamiltonian cycle.

Problem 9.6
Write a an answer set program \( P \) such that all its answer sets correspond to a solution of a Sudoku puzzle.