Problem Set 1

Due Date: March 23, 2018 in class.

Name: _____

Date: _____

Instructions

Answer all the questions in the Homework part and hand in your solutions by the due date. You are strongly encouraged to try the exercise part as well.

Homework

1. pp18 1-4 (5).

2. pp23 1-5 (2).

3. pp29 1-6 (1).

4. pp63 2-3 (7).

Exercise

1. pp17, 1-4 (1) and pp19, 1-4 (9).

2. An island has three kinds of people: knights who always tell the truth, knaves who always lie, and spies who can either lie or tell the truth. You encounter three people, A, B, and C. You know one of these people is a knight, one is a knave, and one is a spy. Each of the three people knows the type of person each of other two is. For each of these situations, if possible, determine whether there is a unique solution and determine who the knave, knight, and spy are. When there is no unique solution, list all possible solutions or state that there are no solutions.

   - A says "C is the knave," B says, "A is the knight," and C says "I am the spy."
   - A says "I am the knight," B says "I am the knave," and C says "B is the knight."
   - A says "I am the knight," B says "I am the knight," and C says "I am the knight."
   - A says "I am not the spy," B says "I am not the spy," and C says "A is the spy."
   - A says "I am not the spy," B says "I am not the spy," and C says "I am not the spy."

3. pp39, 1-7 (3).

4. pp75 2-6 (1).

5. Encode the Sudoku puzzle rules in the predicate logic expressions.

- Every column contains every number.
- Each of the nine 3×3 blocks contains every number.
- No cell contains more than one number.