CSC/MAT-220: Homework 3

Book Problems

Please do each of the following problems from the class book [1]:
   14.11, 14.16, 15.10, 15.14, 16.2, 16.18, 17.18, 17.25, 20.7, 21.8

Other Problems

I. Recall the island of certified/uncertified knights and knaves from Homework 2. This problem is taken from [2]: Answer each of the following questions.

   (a) I came across a native who said, "I am an uncertified knight." Is this the same as Other Problem II (a) from Homework 2? Is it possible to tell whether or not they are a knight or knave? Can you tell whether they are certified or uncertified?

   (b) I came across two natives A and B. I was curious to know of each one whether they were a knight or a knave and whether or not they were certified. They made the following statements:

$$A\text{: } B \text{ is an uncertified knight.}$$
$$B\text{: } A \text{ is a certified knave.}$$

   From this I could solve only part of the problem since I had no way of knowing whether B was a knight or a knave. I later found out whether B was a knight or a knave, and then could solve the entire problem. What is the solution?

References

[1] E. R. Scheinerman, *Mathematics: A discrete introduction*, 3rd ed., Brooks/Cole, Boston, MA, 2013.

[2] R. M. Smullyan, *The Gödelian puzzle book*, Dover, Mineola, NY, 2013.