Course : CSE 103
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Chapter: 1
Section: 2
Exercise : 29
BOOK :DISCRETE MATHEMATICS AND IT'S APPLICATIONS BY ROSEN

QUESTION:

Exercises 24–31 relate to inhabitants of an island on which there are three kinds of people: knights who always tell the truth, knaves who always lie, and spies (called normals by Smullyan [Sm78]) 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.

29: A says "I am the knight," B says "I am the knight," and C says "I am the knight."

SOLUTION:

We can tell nothing here; each of the six permutations is possible. The knight will always say that he is the knight; the knave will always lie, so he might also say that he is the knight; and the spy may lie and say that he is the knight.