**Problem 1**

1) Define the problem

1. A cat, parrot, a man and, bag of seeds need to be transported to one side of the river. There is a man with a boat, the man on the boat can only take himself, the man and one other item across the river at a time. If the cat and parrot are alone the cat will eat the parrot. If the parrot and seeds are left alone the parrot will eat the seeds. *How can all passengers get to the other side without leaving the cat and parrot together or the parrot and seeds together?*
2. The second man does not have to be in the boat also there is no limit on how many times the boat can go back and forth.
3. The over all goal is to get all the passengers to one side without leaving the cat alone with the parrot or the parrot alone with the seeds.

2) Break the problem apart

a) The constraints are that the cat and parrot cannot be together alone and the parrot and the seeds cannot be together alone.

b) The sub goal is to do it the most efficient way possible.

3) Identify potential solutions

a) Not leaving the cat and parrot alone together and not leaving the seeds and parrot alone together.