A Cat, a Parrot, and a Bag of Seed:

A man finds himself on a riverbank with a cat, a parrot and a bag of seed. He needs to transport all three to the other side of the river in his boat. However, the boat has room for only the man himself and one other item (either the cat, parrot or seed). In his absence, the cat could eat the parrot, and the parrot would eat the bag of seed. Show how he can get all the passengers to the other side, without leaving the wrong ones alone together.

**Define.** The predicament in this situation is that the man cannot transport everything at the same time.

**Break the problem apart.** My first thought of resolve was, of course, that he transports the creatures/item one at a time, leaving them on the other side. However, there are certain predicaments that arise considering if he leaves anything on either side:

1. If he carries the bag of seed first, the cat will eat the parrot
2. Carry the cat, and the parrot will eat the bag of seed!

**Possible Solutions.** Thus, this leaves one instant solution: carry the parrot first since the cat isn’t interested in the bag of seed.  
However, this opens up a second set of problems:

1. If the man brings the cat next, when he goes back for the bag of seeds, the cat will eat the bird!
2. If he brings the bag of seeds to the other side, when he leaves for the cat, the bird will eat the bag of seeds.

**Final Resolve.** This does not mean he cannot bring a creature/item back from the other side; transport is available to and from both sides. My final suggestion is that he does the following:

1. Bring the parrot
2. Go back, bring the cat to the other side
3. Bring the parrot back from the other side, leaving the cat
4. Leave the parrot on the original side, bring the bag of seeds
5. Leave the bag of seeds with the cat, go back for the parrot

This solution will work since there are no rules or constraints against switching items/creatures, complying with the rule to transporting one creature/item one at a time on the boat.

Socks in the Dark:

There are 20 socks in a drawer: 5 pairs of black socks, 3 pairs of brown and 2 pairs of white. You select the socks in the dark and can check them only after a selection has been made. What is the smallest number of socks you need to select to guarantee getting the following:

1. At least one matching pair
2. At least one matching pair *of each color.*

**Define.** The first part of the problem is to find a matching pair of socks, regardless of color.