

Problem Solving

Problem #1 A cat, a parrot, and a bag of seed

1

A) The problem the man is facing is that he is not sure what to leave behind while he prepares himself due to the fact that the cat would most likely eat the bird and the bird would eat the seed. So he is trying to figure out a way to do what he needs to do without losing any of his items

B) One insight I have that is not right away visible is that he has a dilemma of the boat can only fit himself and either the cat, parrot, or a bag of seed. He needs to come up with a way to bring all of the creatures across with him with out losing one.

C) The overall goal this man is trying to accomplish is to not lose any of his belonging but to figure out how he can make it across with all of them.

2

A) The constraints of this problem is to try and figure out how to get all of them across the river. But one problem is if he leaves the bird with the seed the bird will most likely eat the seed. But, if he leaves the cat with the bird the cat would most likely eat the bird.

B) The sub goal the man has is for everyone to make it across the river alive without making the mistake of leaving the wrong ones alone while he makes his trips across the river.

3

A) The possible solution would be to put the parrot on the man's shoulder and put the cat in the other location that way he wouldn't leave one alone with the other so they would both live the only thing he wouldn't have is the seed. But as far as I am concerned is he could replace the seed. The animals on the other hand if one killed one another then he would have a huge problem because they are not as easy to replace as the seed is. But that is just one solution.

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A) Each solution in my eyes does meet the goals because the priority is for neither animal to parish but yet he has to get them all across the water.

B) Each solution may or may not work in all cases because it comes down to

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what the man finds to be the absolute most important thing to him.

5

A) My solution to the problem is to ditch the seed and put the parrot on the mans shoulders so that cat does not eat the bird because I feel he could just get more seed once he makes it to his destination. He would have the bird on his shoulders and then he would put the cat in the other spot so that way the cat and bird are as far apart as they can possibly be so the cat can't get the bird.

B) Some test cases I tried to make sure it would work is I put the bird on my shoulder farthest from the cat and put the cat in the bottom of the boat so that they were separated from one another. Because having had a bird before I know how cats and dogs can make parrots freak out if they move the wrong way. But by doing this method it would eliminate the tension and would make it possible to take all the living creatures across safely.

Problem #2 Socks in the Dark Part A

1A) The problem at hand is trying to get at least 1 matching pair with the smallest number of socks and yet ending up with one matching pair.

1B) The insight I can offer from the information that is given that might not be visible at first glance is that you are working with 20 socks total and a color ratio of 10:6:4 which does not give you the best odds of getting any color other than black and brown.

1C) The overall goal is to get one matching pair of socks with the least amount of socks in the drawer.

2A) The constraints to this problem is you need a matching pair, it is dark in the room, and you have to have the fewest socks in the drawer to end up with one matching pair and you can't check to see what you got until you have picked two of the socks out of the drawer.

2B) The sub-goal is to eliminate socks but make sure there is a mix still left in the drawer so that you can pick at random with out knowing exactly what you are getting until after you have chosen out the ones you are going to be wearing regardless of matching or not.

3A) The possible solution to getting a matching pair of socks I believe would best be done if you only wear one kind of sock or all your other colored socks are dirty

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so you know that no matter what you pick it will be a match.

4A) I believe each solution would meet the goal because if you only have one sock color you will always have a match. Or if all but one color socks is dirty you will know you have one color that is not dirty therefore you will still get the match you are looking for.

4B) Yes the solution will work for all cases if you do it the way I described.

5A) Pretty much my solution in full is to just have one color of socks because you will never have to worry about choosing a mix matched pair if you are trying to end up with a matching pair. Or even as I said wear all the colors till your left with one so you know what color you have left and would know what you would end up with.

5B) The test I did was wear all one colored socks till I was onto the next color and so on till I ended up with just one color left so I knew if I was trying to get just one matching pair of socks I would get it no matter what.

Problem #2 Socks In the Dark Part B

1A) The problem we are now facing is how to end up with at least one matching pair of each color sock that is in the drawer so we have to make sure we have one pair of black, brown, and white so we can end up with each color as a pair.

1B) The insight I can offer into this is knowing off the top of my head that there are 10 black socks total which tells me right away I would need to wear a few pairs of those to eliminate some of the pairs of black.

1C) The overall goal is to make sure I end up with 1 pair of each color sock.

2A) The constraints is that there are 10 total socks 6 total brown and 4 total white socks and I need to make sure I end up with 1 pair of each left.

2B) The sub goal would be to wear the black socks 4 days in a row and the brown two days in a row and the white socks one day. So, that I could guarantee having one matching pair of each color.

3A) The possible solution to this problem is wear the black socks 4 times the brown twice and white once so that it is possible to end up with one matching pair of each color in the end.

4A) Each solution does meet the goal because by doing what I said you would end up with three pairs of socks one white, one black and one brown therefore

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the goal would have been met.

4B) The solution will work for all cases as long as you track the color socks you wear each day to make sure that you end up with a pair of each.

5A) The solution in full is as I described previously which is to wear each color till you end up with one pair of each left.

5B) The test I conducted worked because I monitored the socks I wore so I made sure that I was able to end up with a pair of matching colors in the end.

Problem #3 Predict Fingers

1A) The problem at hand is that the girl is trying to figure out which finger she would end up on while counting from 1-10 and then from 1-100 and then 1-1000.

1B) The insight I can offer from the information given is that to figure it out in my mind is a trick question because if she ends up on her thumb counting to 10 she would then end up on her thumb again at 20 so I feel no matter what she counts to whether its 10,20,30,40,50,60,70,80,90,100, and so on to 1000 I think she would still end up on her thumb which is the finger she starts with.

1C) The overall goal is to figure out which finger she would start and end on for each of the examples given below.

2A) The Constraint is that some of those numbers are very high but if you use some simple math it should be possible to figure out what fingers she would start and end up on if she just uses her left hand as stated in the problem.

2B) The sub goals are to establish which fingers she would start and end up on.

3A) The possible solution to figure out for sure what fingers she would end up on would be to video tape her counting as stated from 1-10 then from 1-100 and then 1-1000 and you should be able to see which finger she starts and stops on for each section. The only problem is each time you wanted to see the new bracket like 1-10 she would have to restart when going from 1-100 and so on for the rest.

4A) Each solution would meet the goal the only problem is it would be timely and hard to keep track of.

4B) The perfect solution I gave will work if executed perfectly and accurately.

5A) The solution I have given is to set up a tripod and record the young girl

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counting so that you can see exactly where she starts and where she ends because I feel trying to do it without seeing it on tape would be hard because you might lose track of where she starts and ends so I feel this would be the easiest way to go about doing this.

5B) The test was counting numerous times from 1-100 to make sure that I could physically and mentally keep track of where I started and stopped, and it seemed to work well for me but to be 100% accurate with this problem solving I would record myself doing it so I could see exactly what I was doing and to make sure I did not mess up while counting it out.