

Problem Statement: A king has twelve bags of gold and he knows one is full of counterfeit gold coins. All he has is a pan scale and he wants to figure out which one it is in the least amount of weighings possible. He knows it is impossible in two or below weighings, but he doesn't know whether the bag is lighter or heavier. What is the least number of weighings possible?

Process: I started by looking up the weight of counterfeit gold coins versus real gold coins and I found that they were underweight, or lighter. Since I knew the bag was lighter, I separated the twelve bags into two groups of six then with the lighter group, I put it into groups of three and the with the lighter one (again), I put two from the three on the scale so if they were even it would know the other one is lighter. I tried doing it other ways but on the final night I gave up and went with my original answer even though I know it is wrong.

Solution: I found that the bag with counterfeit coins could be determined in three weighings if the weight of the coins are predetermined.

Evaluation: I solved the problem under the assumption that they were lighter even though Jocelyn said it was wrong. My way would probably work in all situations since counterfeit gold coins are lighter but it wouldn't work if you do it mathematically.