* 1. ***A Cat, a Parrot, and a Bag of Seed:***

This problem has a man, a cat, a parrot and a bag of seed. The man has a boat and needs to transport the 3 across the river. The man can only fit one item plus himself on the boat at a time. If he leaves the cat with the parrot the cat will eat the parrot and if the man leave the seed with the parrot the parrot will eat all the seed.

* 1. The man must leave 2 items together on both sides of the river. The hardest part about this problem isn’t the first trip it would be the second. The cat and the seed could stay together but not the other way. The parrot could also fly I would hope.
  2. The possible solutions to this problem could be to have the parrot fly about the boat with him the on all trips. This could make it so the cat could go first and stay alone then the seed. All while the parrot is flying above the boat with the man.
  3. This problem would require some kind of a rope or string to attach to the parrot so he would stay with the boat. This would also require that the man take more then one trip. But in the end the goal would be met.
  4. The possible solution would be to take the cat with the parrot flying along with the boat so that neither the cat nor the parrot would be left alone. This would take all possibilities of them eating anything away.

1. **Socks in the Dark:**

This problem you have to pick socks from a drawer in the dark. You have 20 socks with 5 pairs that are black, 3 pairs that are brown and 2 pairs that are white. The main question is to be able to select the smallest number of socks to get a matching pair, and then to get a matching pair in each color.

1. This problem you would have to figure out the odds of you picking the right color of sock each time you picked a sock. The goal would to pull out socks in pairs. Every time you have to pick 2 socks to keep it consistent.
2. The potential solution could be 4 socks for the first matching pair. The other solution would be 12 socks to get 3 matching pair.
3. These solutions meet both goals. The odds are in the favor of the matching socks!
4. The first of the pair of socks would take 4 socks because you could pull one of each sock and then pull one more that would complete the pair. The 3 pairs of all the colors would require a minimum of 12 because if you take the odds of the first question to get 1 pair it would take the same amount 3 times which adds to 12 socks.
5. **Predicting Fingers**:

The problem consists of a girl counting on her fingers. She counts to 10 on one hand. This makes the use of several of the same fingers. Starting with one on the thumb and then counter over to 5 on the pinky and then back to 10 on the pointer finger. The goal is to determine what finger you would end your count on when counting to 10, 100, 1000.

1. For this problem I had to use my fingers. I started to count with the problem to feel and see the why she is counting. You can’t count the same finger twice in a row. When counting you have to determine what finger you end on.
2. The solution just consists of counting in 10’s. You only have 5 fingers and can only count 9 in a full sweep of the fingers. So the when counting this way the fingers would naturally shift on every ten. So 10 would be pointer. 100 would be middle finger. 1000 would be ring finger.
3. While counting you could just count it out on your fingers or you could figure it out on paper. The fastest way would be on paper with the pattern shift.
4. The plane would be to use paper and write down a number that represents the finger. Count the pattern and figure out what finger it would land on.