Round table coin game

John and Jane are playing a game. They both go to the bank and get 1000 euros in 2 euros. So each of them has 500 euros at stake. They then find a large rectangle table and decide who wins the following game gets to keep all of the coins currently at the table. The rules are as follows:

* It is a turn-based game, so John and Jane take turns alternatively (1 coin per turn)
* The coins are placed on the table and they cannot be put on top of each other.
* Coins may not be moved once put on the table
* Assume the table isn't large enough to hold all the coins
* If there isn't any room to put coins on the table, the person who placed the last possible coin wins.

What is the winning game strategy?

Ans -

*The winning* *strategy for the first player is to put their coin in the dead center of the table. Then whatever move their opponent makes, they exactly mirror it, around the center.*

*e.g. If the second player puts their first coin 1 inch to the left of the center coin, the first player mirrors this by putting their coin 1 inch to the right of the center coin.*

*It's relatively easy to see why this works. If a spot is free for player 2, then its mirroring spot must also be free for player 1 because after each turn player 1 takes, there will be no unmirrored spots left. This means that wherever player 2 goes, there's guaranteed to be a spot left for player 1. So the only person who can possibly reach a state where there's no spot to go is player 2, who*

# How to Measure 45 minutes using two identical wires?)

# Burn stick one from both side – 30 min

# Break 2nd stick into 2 parts and burn anyone from both side – 15 min

# Find ages of daughters

1) The product of their ages is 72.

2) The sum of their ages is equal to my house number.

3) The oldest of the girls likes strawberry ice-cream.

Ans-

Below are all possibilities to get 72 from product of three different ages:

1 \* 1 \* 72 = 72

1 \* 2 \* 36 = 72

1 \* 3 \* 24 = 72

1 \* 4 \* 18 = 72

1 \* 6 \* 12 = 72

1 \* 8 \* 9 = 72

2 \* 2 \* 18 = 72

2 \* 3 \* 12 = 72

2 \* 4 \* 9 = 72

2 \* 6 \* 6 = 72

3 \* 3 \* 8 = 72

3 \* 4 \* 6 = 72

2) Sum of the ages is given

1 + 1 + 72 = 74

1 + 2 + 36 = 39

1 + 3 + 24 = 28

1 + 4 + 18 = 23

1 + 6 + 12 = 19

1 + 8 + 9 = 18

2 + 2 + 18 = 22

2 + 3 + 12 = 17

2 + 4 + 9 = 15

2 + 6 + 6 = 14

3 + 3 + 8 = 14

3 + 4 + 6 = 13

All sums are unique except 14. So the age sum must have been 14.

So we have two possible combination to get sum 14

2 + 6 + 6 = 14

3 + 3 + 8 = 14

3) an oldest girl (not two!!) liked strawberry ice-cream. So the ages must be 3, 3 and 8.

# Pay an employee using a 7 units gold rod?

An employee works for an employer for 7 days. The employer has a gold rod of 7 units. How does the employer pay to the employee, so that the number of employee’s units increases by one at the end of each day. The employer can make at most 2 cuts in the rod.

**Solution:**  
Employer can pay for seven days by making 2 cuts in a way that he has 3 rods of size 1, 2 and 4.

**1st Day:** give 1. = 1

**2nd day:** take 1, give 2 = 2

**3rd Day:** give 1 = 2+1 = 3

**4th Day:** take 1 and 2, give 4 = 4.

**5th Day:** give 1 = 4+1=5

**6th Day:** take 1, give 2 = 4+2=6

**7th Day:** give 1 = 6+1 = 7

# (Torch and Bridge)

**Puzzle:** There are 4 persons (A, B, C and D) who want to cross a bridge in night.

1. A takes 1 minute to cross the bridge.
2. B takes 2 minutes to cross the bridge.
3. C takes 5 minutes to cross the bridge.
4. D takes 8 minutes to cross the bridge.

There is only one torch with them, and the bridge cannot be crossed without the torch. There cannot be more than two persons on the bridge at any time, and when two people cross the bridge together, they must move at the slower person’s pace.

**Step 1:** A and B cross the bridge. A comes back. Time taken **3 minutes**. Now B is on the other side.

**Step 2:** C and D cross the bridge. B comes back. Time taken **8 + 2 = 10 minutes**. Now C and D are on the other side.

**Step 3:** A and B cross the bridge. Time taken is **2 minutes**. All are on the other side.

**Total time spent:** 3 + 10 + 2 = 15 minutes.

# Bag of Coins

Ishita has 10 bags full of coins. Each bag contains 1000 coins. But one bag is full of forgeries, and she just can’t recall which one. She does know that genuine coins weigh 1 gram, but forgeries weigh 1.1 grams. To hide the fact that she can’t recall which bag contains forgeries, she needs your help. How can she identify the bag with the forgeries with just one weighing?

**Solution:**  
It is known that there is only one bag with forgeries. To identify that bag, Ishita can follow a simple procedure. She should take out 1 coin from the 1st bag, 2 coins from the 2nd bag, 3 coins from the 3rd bag and similarly 10 coins from the 10th bag.

Now she should simply weigh all these picked coins together.  
If there were no forgeries, then the total weight should be (1+2+3+ . . . +10) = 55 grams.  
Now, if the total weight comes out to be 55.3 then she can conclude that the 3rd bag contain forgeries. So, if the total weight is (55.n), then it is clear that the nth bag contain forgeries.

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# *There are three boxes, one contains only apples, one contains only oranges, and one contains both apples and oranges. The boxes have been incorrectly labeled such that no label identifies the actual contents of the box it labels. Opening just one box, and without looking in the box, you take out one piece of fruit. By looking at the fruit, how can you immediately label all of the boxes correctly?*

# All you need to do is pick one fruit from the one marked "Apples + Oranges".

# If it's Apple, then change "Apple + Orange" to "Apple"

# The "Apple" one change to "Orange"

# The "Orange one change to "Apple + Orange"

# If it's Orange, then change "Apple + Orange" to "Orange"

# The "Apple" one change to "Apple + Orange"

# The "Orange" one change to ""Apple"

# Measuring 6L water from 4L and 9L buckets

Consider 2 buckets one 4L and other 9L. : Bucket 1 (4L) and Bucket2 (9L)

First fill the 9L bucket fully. : 0 L and 9 L

Pour the water into 4L bucket. : 4 L and 5 L

Empty the 4L bucket. : 0 L and 5 L

Repeat this twice. : 4 L and 1 L

Now you will left with 1L water in the 9L bucket : 0 L and 1 L

Now pour this 1L into the 4L bucket : 1 L and 0 L

Refill the 9L bucket. : 1 L and 9 L

Now pour the water from 9L into the 4L bucket until it fills up. : 4 L and 6 L

Now you are left with 6 L water in the 9L bucket.

**Measure 90 and 50 kg of sugar using 7 and 2kg of weight and you can use the beam balance only thrice.**

for 50 KG- I will measure 9KG sugar with 7 & 2kg Weight. Now, with the help of 9 KG sugar, 7 & 2 KG weight, I will measure another 18 KG sugar. After this, I have one 18 KG sugar, 9KG sugar ( total sugar 27 KG) & two weight of 7 & 2kg respectively. I have to measure another 23 KG sugar ( to make it 50KG total). I will Place 18KG sugar+ 7KG weight on one side of beam balance & 2kg on another side ( 18+7-2= 23), now i can measure 23 KG sugar, making total sugar of 50 KG ( 9+18+23=50 )