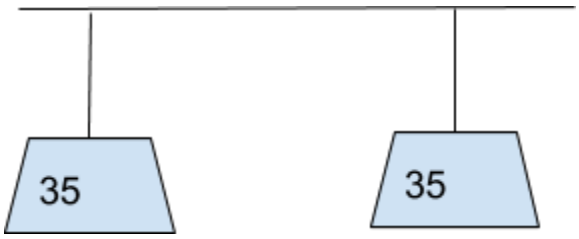
Problem : Find the fake coin out of 70 coins which is lesser in weight using a common balance.

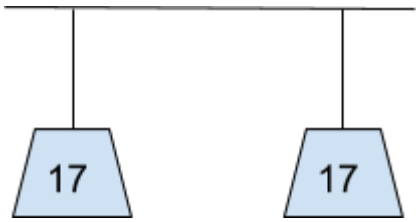
Step 1:

Split all the 70 coins into two parts and place each part in the balance. The part which is lesser in weight is out input for next step.



Step 2:

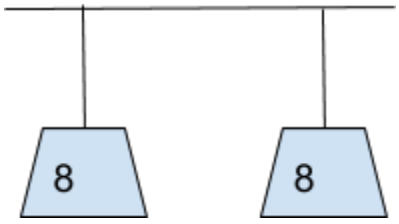
Now, split the 35 coins into 3 parts, i.e. (17,17,1). Let's put the 2 parts (17,17) in the balance. And there is an extra coin in our hand.



- If both of the sides are equal, it is clear that the extra coin in our hand is the FAKE coin. FAKE COIN FOUND in 2 steps.
- Else, the part with lesser weight is our input for the next step, i.e. next input is 17 coins.

Step 3:

Now, split the 17 coins into 3 parts, i.e. (8,8,1). Let's put the 2 parts (8,8) in the balance. And there is an extra coin our hand.



- If both of the sides are equal, it is clear that the extra coin in our hand is the FAKE coin. FAKE COIN FOUND in 3 steps.
- Else, the part with lesser weight is our input for the next step, i.e. next input is 8 coins.

Step 4:

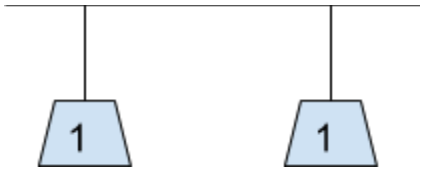
Split all the 8 coins into two parts and place each part in the balance. The part which is lesser in weight is out input for next step.

Step 5:

Split all the 4 coins into two parts and place each part in the balance. The part which is lesser in weight is out input for next step.

Step 6:

Split all the 2 coins into two parts and place each part in the balance. The part which is lesser in weight is the FAKE COIN.



So, the maximum no. of steps required to find the FAKE COIN are **6.**