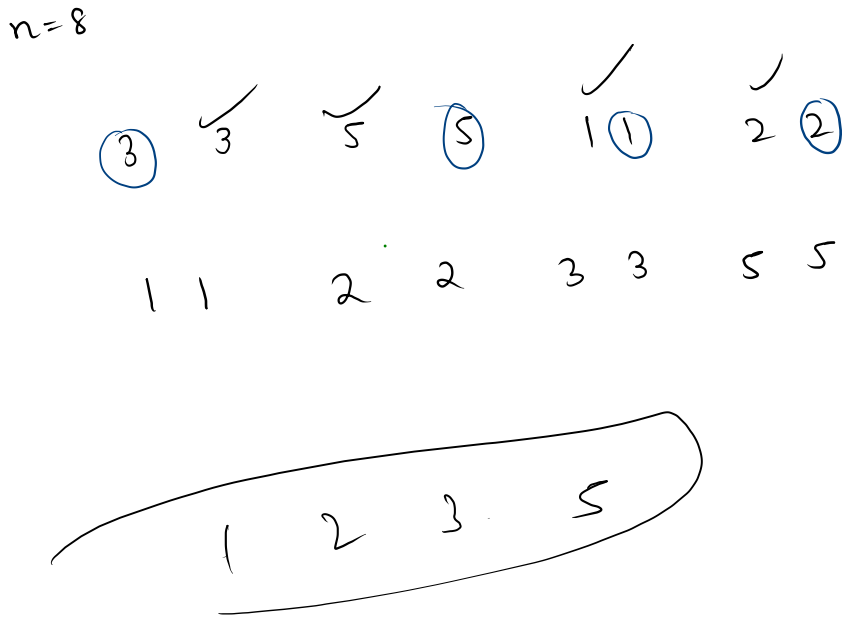
Four Sum

Sample Input 0

```
8
3 3 5 5 1 1 2 2
11
```

Sample Output 0

```
1 2 3 5
```



$A[a] + A[b] + A[c] + A[d] = tar$

fixed

$N\ tar = tar - A[a] - A[b]$

```java
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int n = scn.nextInt();
        int [] A = new int[n];
        for(int i = 0; i < n; i++){
            A[i] = scn.nextInt();
        }
        int tar = scn.nextInt();

        Arrays.sort(A);
        for(int i = 0; i < n; i++){
            if(i != 0 && A[i] == A[i-1]){
                continue;
            }

            for(int j = i+1; j < n; j++){
                if(j != i+1 && A[j] == A[j-1]){
                    continue;
                }

                // 2 pointer
                int l = j + 1;
                int r = n - 1;
                int newTar = tar - A[i] - A[j];

                while(l < r){
                    int sum = A[l] + A[r];
                    if(sum > newTar){
                        r--;
                    }else if(sum < newTar){
                        l++;
                    }else{
                        //equal
                        System.out.println(A[i] + " " + A[j] + " " + A[l] + " " + A[r]);
                        l++;
                        r--;

                        while(l < r && A[l] == A[l-1]){
                            l++;
                        }
                        while(l < r && A[r] == A[r+1]){
                            r--;
                        }

                    }
                }

            }
        }
    }
}
```

1497. Check If Array Pairs Are Divisible by k

Medium 1759 94 Add to List Share

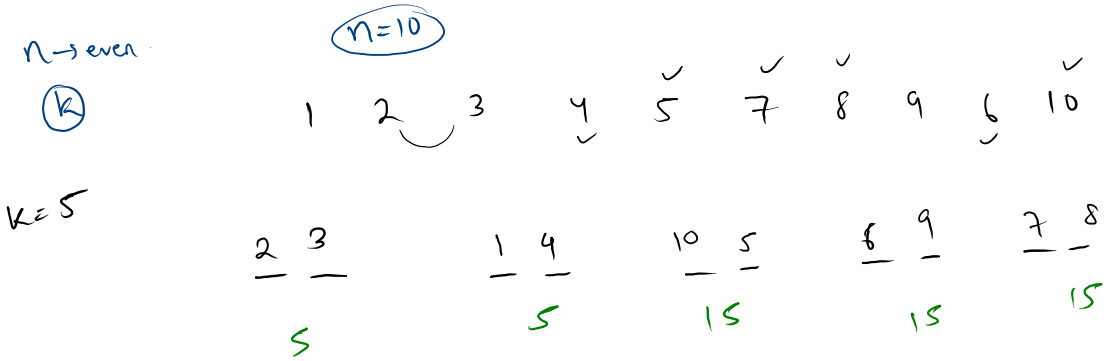
Given an array of integers `arr` of even length `n` and an integer `k`.

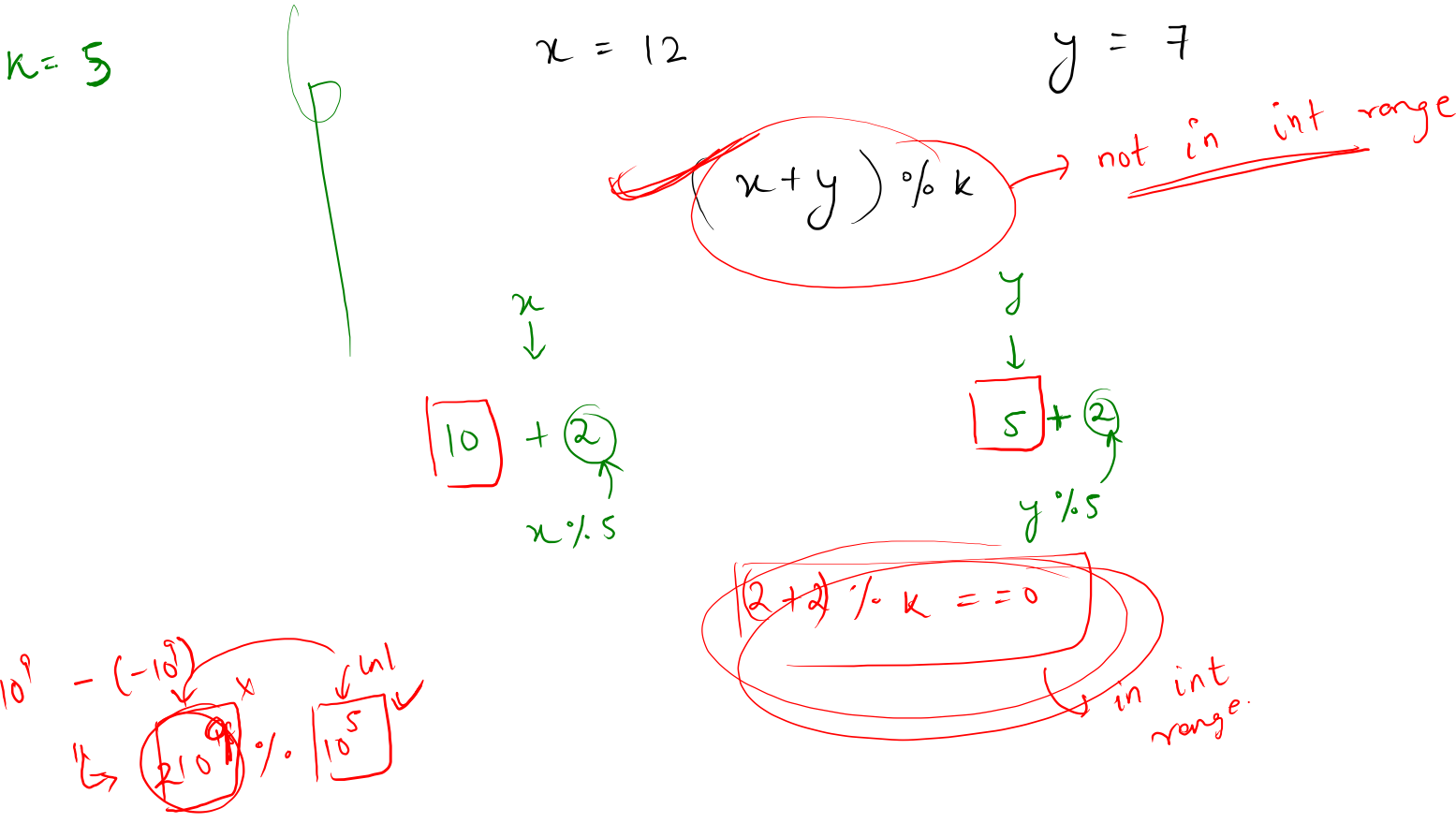
We want to divide the array into exactly `n / 2` pairs such that the sum of each pair is divisible by `k`.

Return `true` *If you can find a way to do that or* `false` *otherwise.*

Example 1:

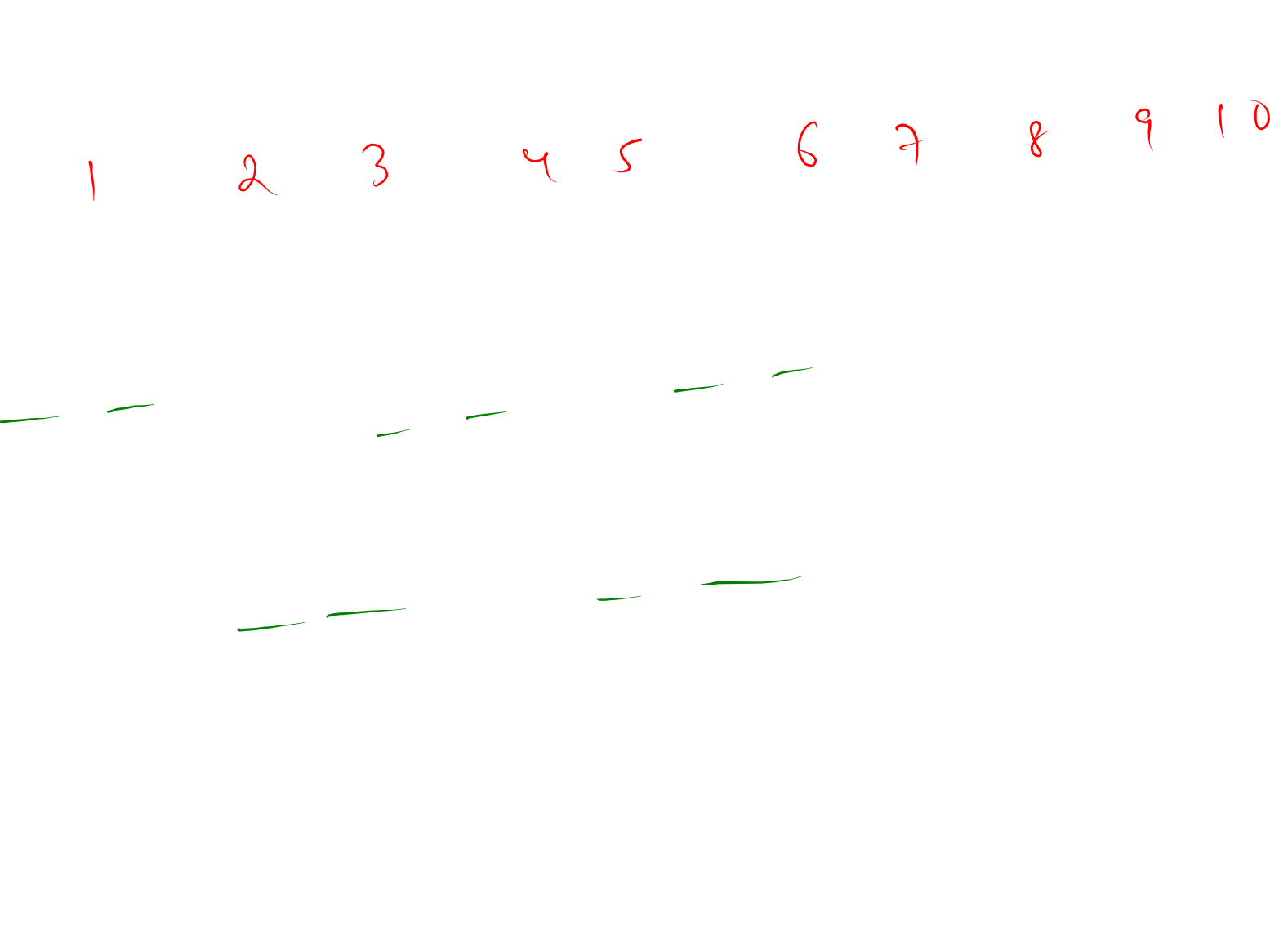
```
Input: arr = [1,2,3,4,5,10,6,7,8,9], k = 5
Output: true
Explanation: Pairs are (1,9),(2,8),(3,7),(4,6) and (5,10).
```




k = 5
x = 12
y = 7
(x + y) % k
not in int range
x
y
10
+ 2
x % 5
5
+ 2
y % 5
(2+2) % k == 0
in int range.
10^9 - (-10)
x
int
10
% 10^5

$$(x + y) \ \%\ k == 0$$

$$x \%\ k \ + \ y \%\ k == 0$$


1 2 3 4 5 6 7 8 9 10

K = 5

x = 12

y = 8

(x + y) % K == 0

3

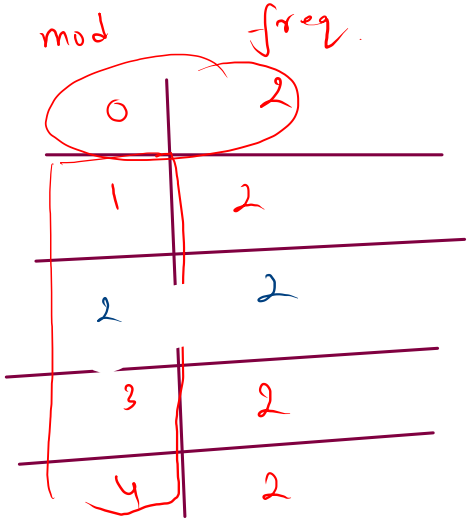
12

8, 2

12, —

k=5

	1	2	3	4	5	6	7	8	9	10
%k	1	2	3	4	0	1	2	3	4	0



0 → freq is even or not

```
18
19      for(int p = 1; p < k; p++){
20          int f1 = hm.getOrDefault(p, 0);
21          int f2 = hm.getOrDefault(k-p,0);
22          if(f1 != f2){
23              return false;
24          }
25      }
26      return true;
```

1 3 4 5 6 8 9 10

```
for(int p = 1; p < k; p++){
    int f1 = hm.getOrDefault(p, 0);
    int f2 = hm.getOrDefault(k-p,0);
    if(f1 != f2){
        return false;
    }
}
return true;
}
```

p=2

0 → 2

1 → 2

3 → 2

4 → 2

f1 = 0

f2 = 2

$-2 \% 5 = ?$

$(2 \% 5) + 5$

$-2 + 5 = 3$

-2

$12 \% 5 = 2$

$12 - 2 = 10 \% 5$

$-2 \% 5 = 3$

$(2+3) \% 5 == 0$

$-2 \% 5$

$-2 + 5 = 3$

Java Autocomplete

```java
class Solution {
    public boolean canArrange(int[] arr, int k) {
        HashMap<Integer, Integer> hm = new HashMap<>();
        for(int i = 0; i < arr.length; i++){
            int mod = arr[i] % k;
            if(mod < 0){
                mod += k;
            }
            hm.put(mod, hm.getOrDefault(mod, 0)+1);
        }

        if(hm.containsKey(0)){
            int zeroFreq =  hm.get(0);
            if(zeroFreq%2 != 0){
                return false;
            }
        }

        for(int p = 1; p < k; p++){
            int f1 = hm.getOrDefault(p, 0);
            int f2 = hm.getOrDefault(k-p,0);
            if(f1 != f2){
                return false;
            }
        }
        return true;
    }
}
```