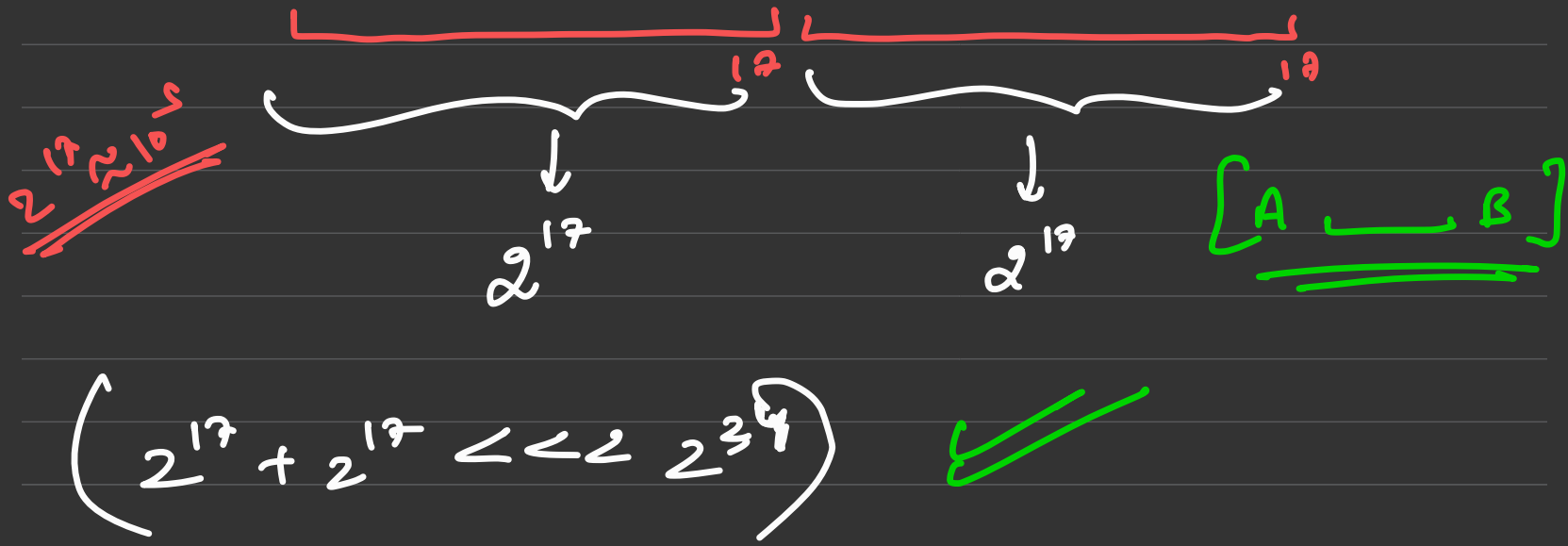
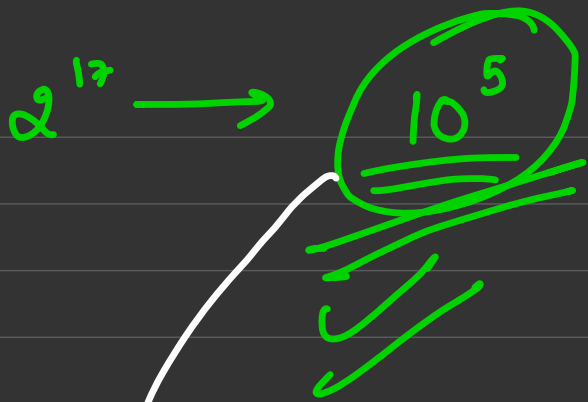
↳ $N \leq 34$ → if $N \leq 20$ → Brute force ✓

↳ We can't generate all subsets

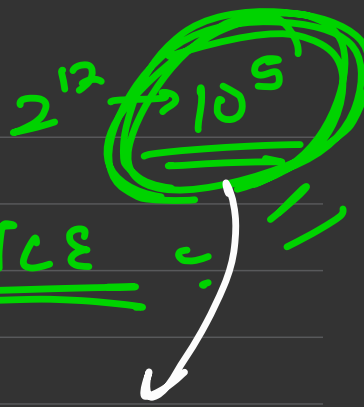
instead of 2^{34} how about we divide our array in 2 parts (17) (17) & create all possible subsets for the 2 arrays separately.



$$\left(2^{17} + 2^{17} << 2^{34}\right)$$



10^{10} all comb.'s TLE :(

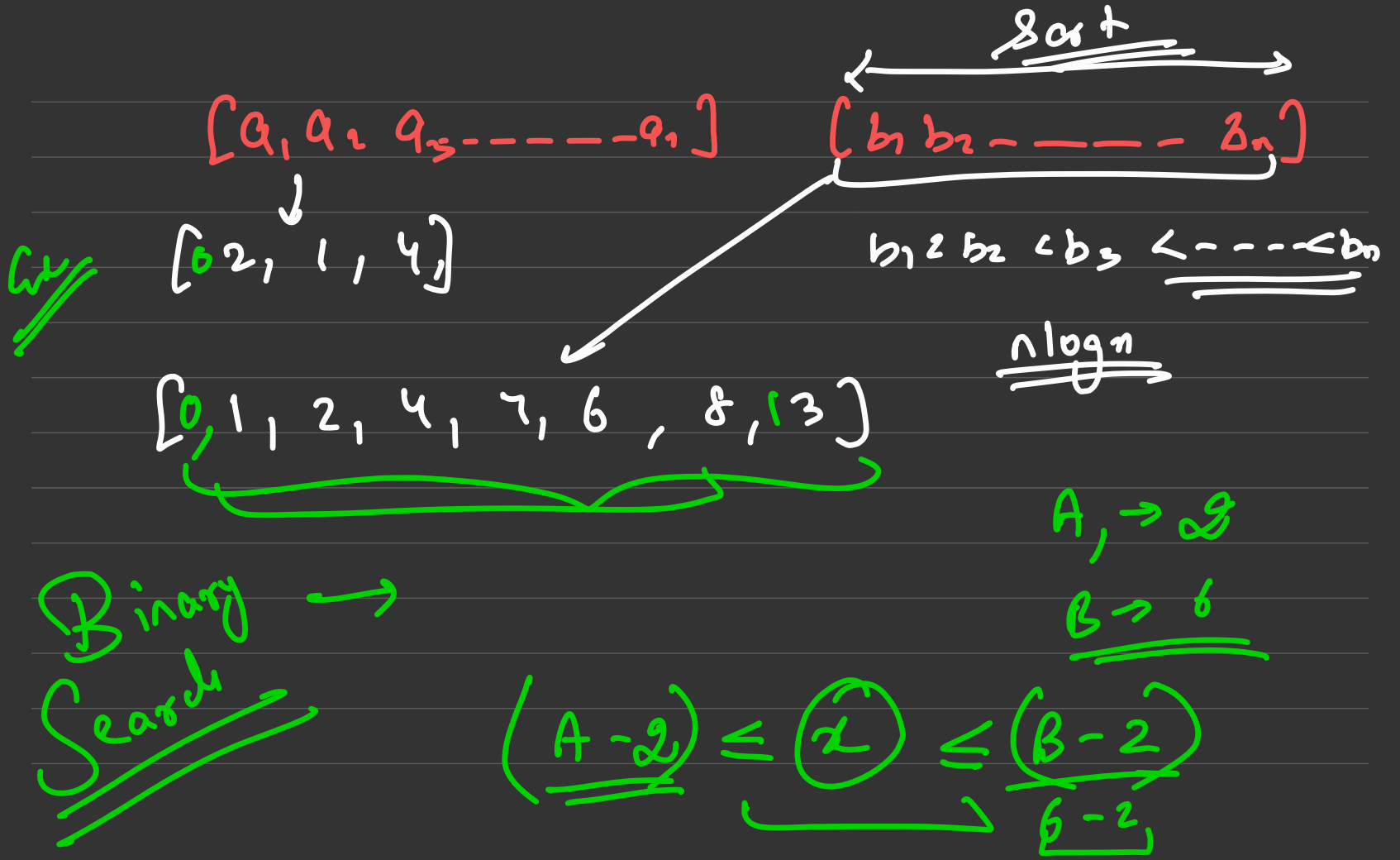


array of subset sum

$[a_1, a_2 \text{-----} a_n]$

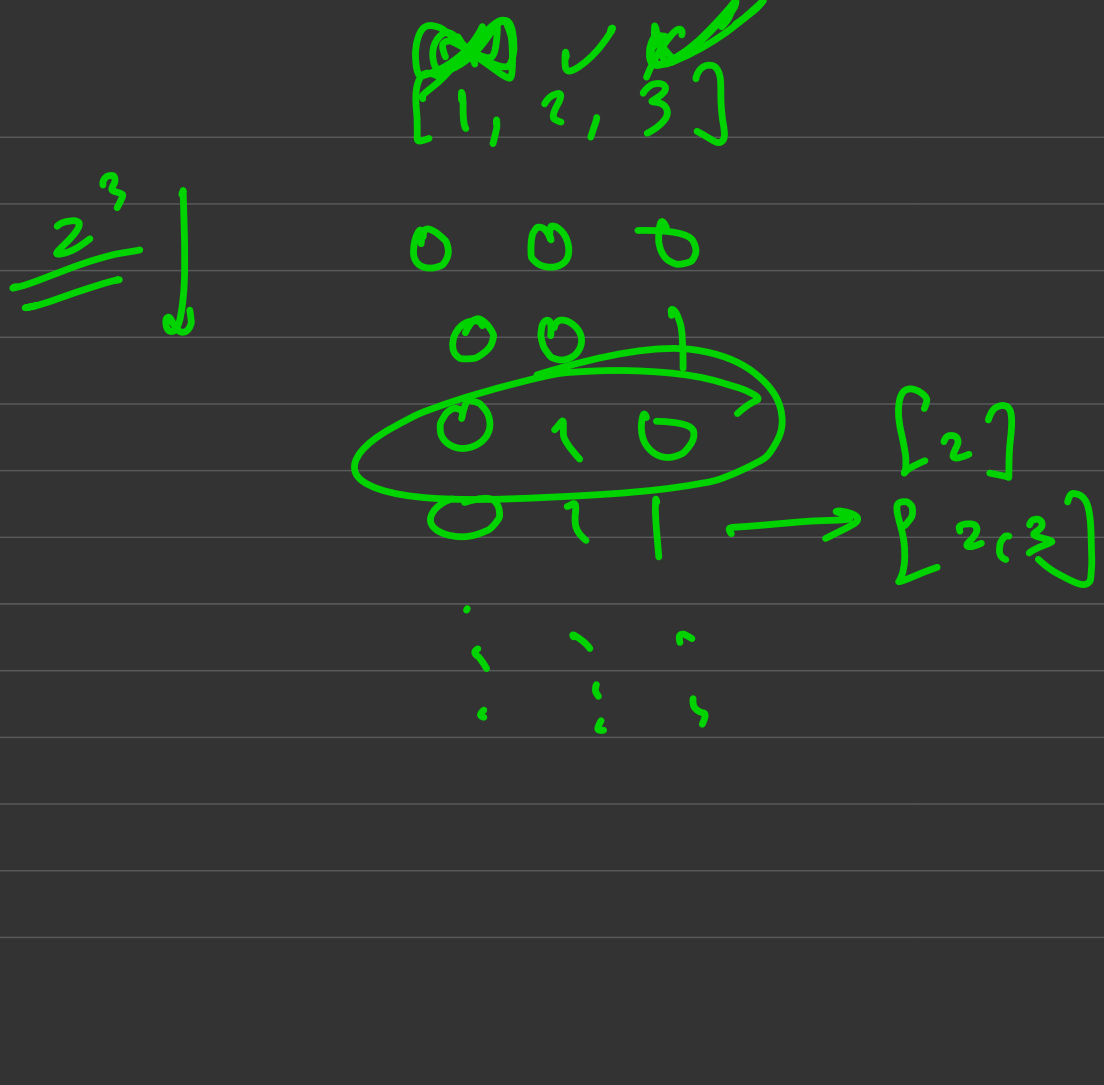
array of subset sum!

$[b_1, b_2 \text{-----} b_n]$


Sort
[a1 a2 a3 ----- an]
[b1 b2 ---- bn]
b1 ≤ b2 ≤ b3 ≤ ---- ≤ bn
nlogn
[0, 1, 2, 4, 7, 6, 8, 13]
Binary Search
A1 → a
B → b
(A-2) ≤ (x) ≤ (B-2)
b-2

$$A \leq x+2 \leq B$$

$$A-2 \leq x \leq B-2$$


[1, 2, 3]
2^3
[2]
[2,3]

```
for(int mask = 0; mask < (1 << size); mask++) {
    ll sum = 0;
    for(int i = 0; i < size; i++) {
        if(mask & (1 << i)) {
            sum += arr[i+start];
        }
    }
    result.pb(sum);
}
```

3

[1, 2, 3] → size = 3

mask = 0 → $(2^3 - 1)$ → 7

mask → 0 → 7

mask → 5

[4]

[1, 2, 3]

Sum ⇒ 0 1 4

i = 0, 1, 2

000

1 << i

(001) << (000)

001

1 << 1

(001) << 001 → 010

```
  101
  010
  ---
  000

  101
  001
  ---
    1

  101
  100
  ---
  100      1 << 2
```

$\rightarrow \quad \frac{a*b+c}{d} - e = f \qquad d \neq 0$

$(a*b+c) = (f+e)*d$

{a, b, c}

{f, e, d}

triplet {a, b, c} → x

triplet (f, e, d) → y_i

$[x_1, x_2, \ldots, x_n]$ $\quad$ $[y_1, y_2, \ldots, y_n]$

$j < k$ $\quad$ $y_j = x_i = y_k$ $\quad$ $y_k = y_j = x_i$