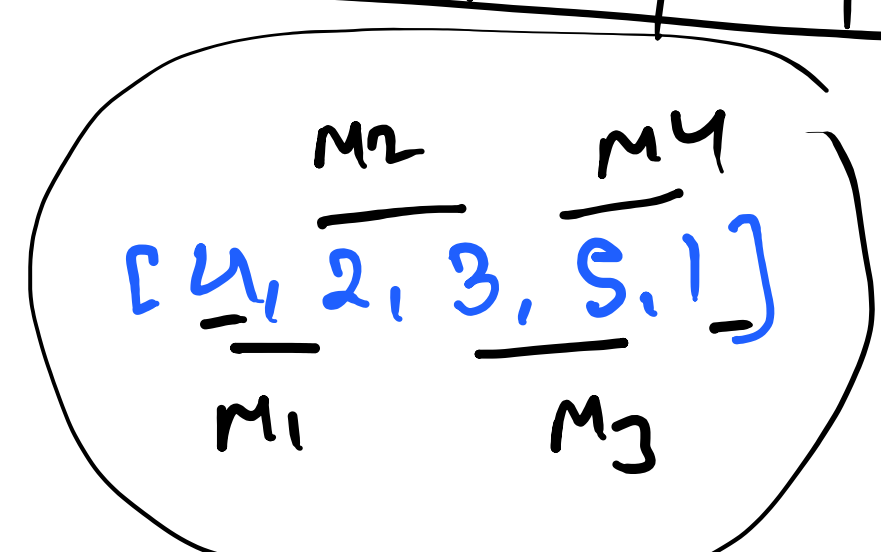
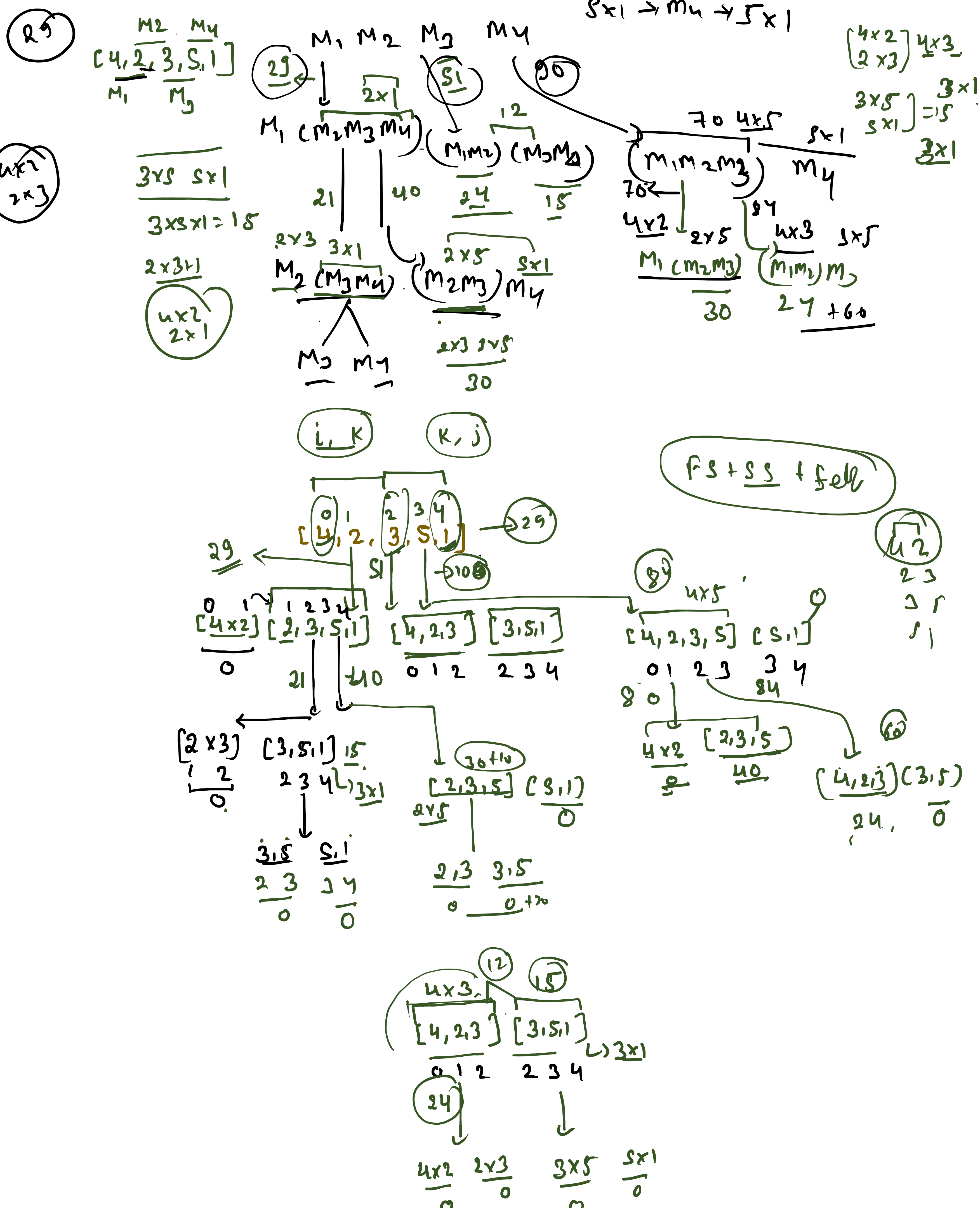


$$\begin{array}{r} 4 \times 5 \\ \hline 3 \times [4 \times 5] = 60 \end{array}$$



$$[M_1 M_2 M_3 M_4]$$

$$\begin{aligned} 4,2 &\rightarrow M_1 \rightarrow 4 \times 2 \\ 2,3 &\rightarrow M_2 \rightarrow 2 \times 3 \\ 3,5 &\rightarrow M_3 \rightarrow 3 \times 5 \\ 5 \times 1 &\rightarrow M_4 \rightarrow 5 \times 1 \end{aligned}$$



You are given n balloons, indexed from 0 to $n - 1$. Each balloon is painted with a number on it represented by an array `nums`. You are asked to burst all the balloons.

If you burst the i^{th} balloon, you will get $\text{nums}[i - 1] * \text{nums}[i] * \text{nums}[i + 1]$ coins. If $i - 1$ or $i + 1$ goes out of bounds of the array, then treat it as if there is a balloon with a 1 painted on it.

Return the maximum coins you can collect by bursting the balloons wisely.

Example 1:

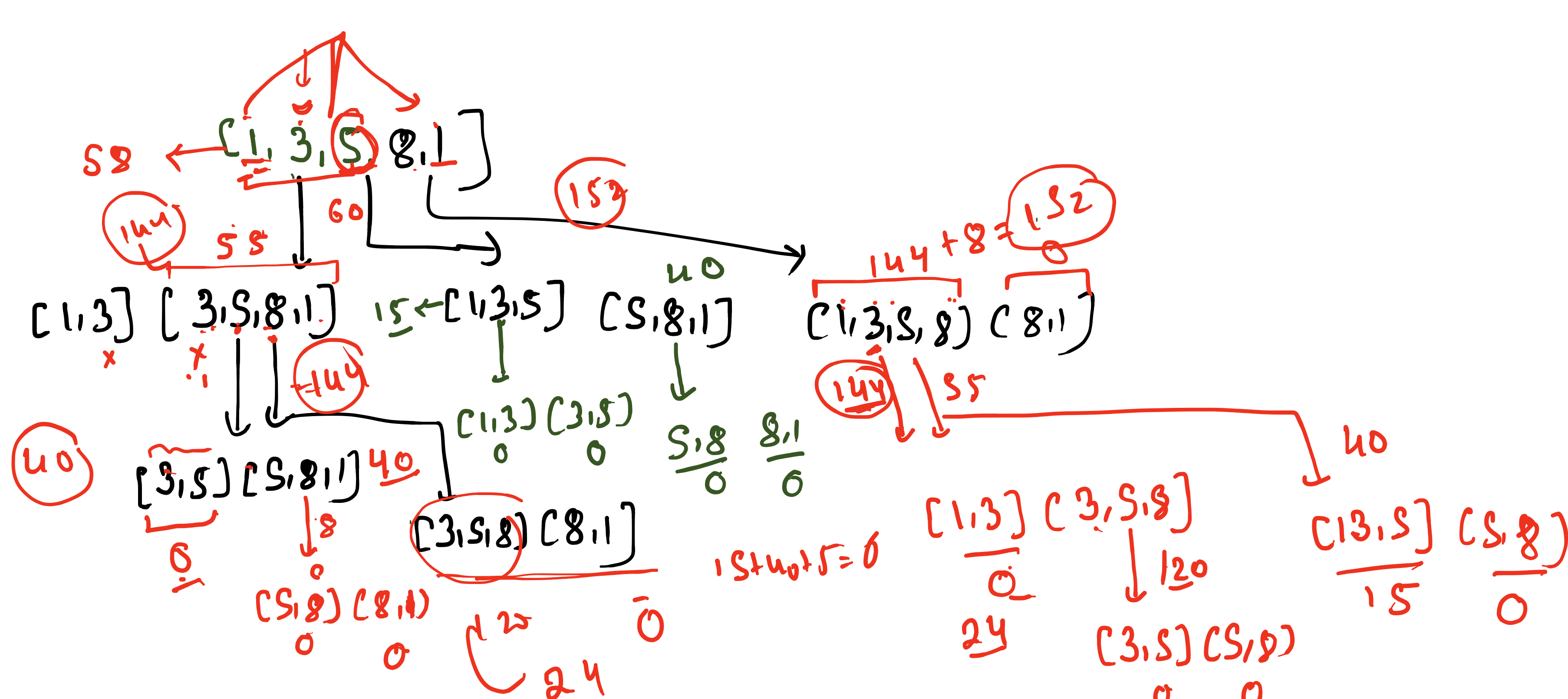
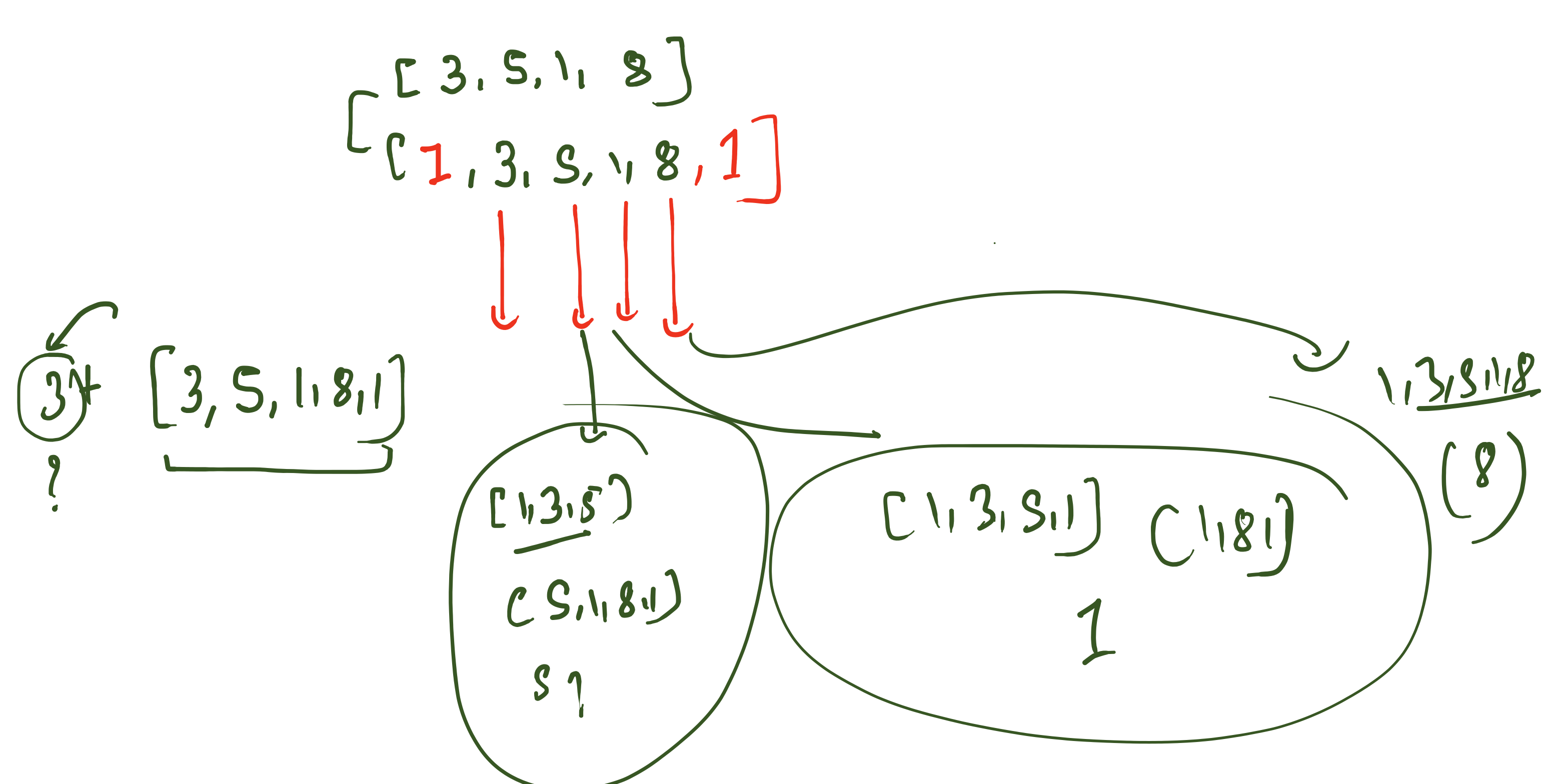
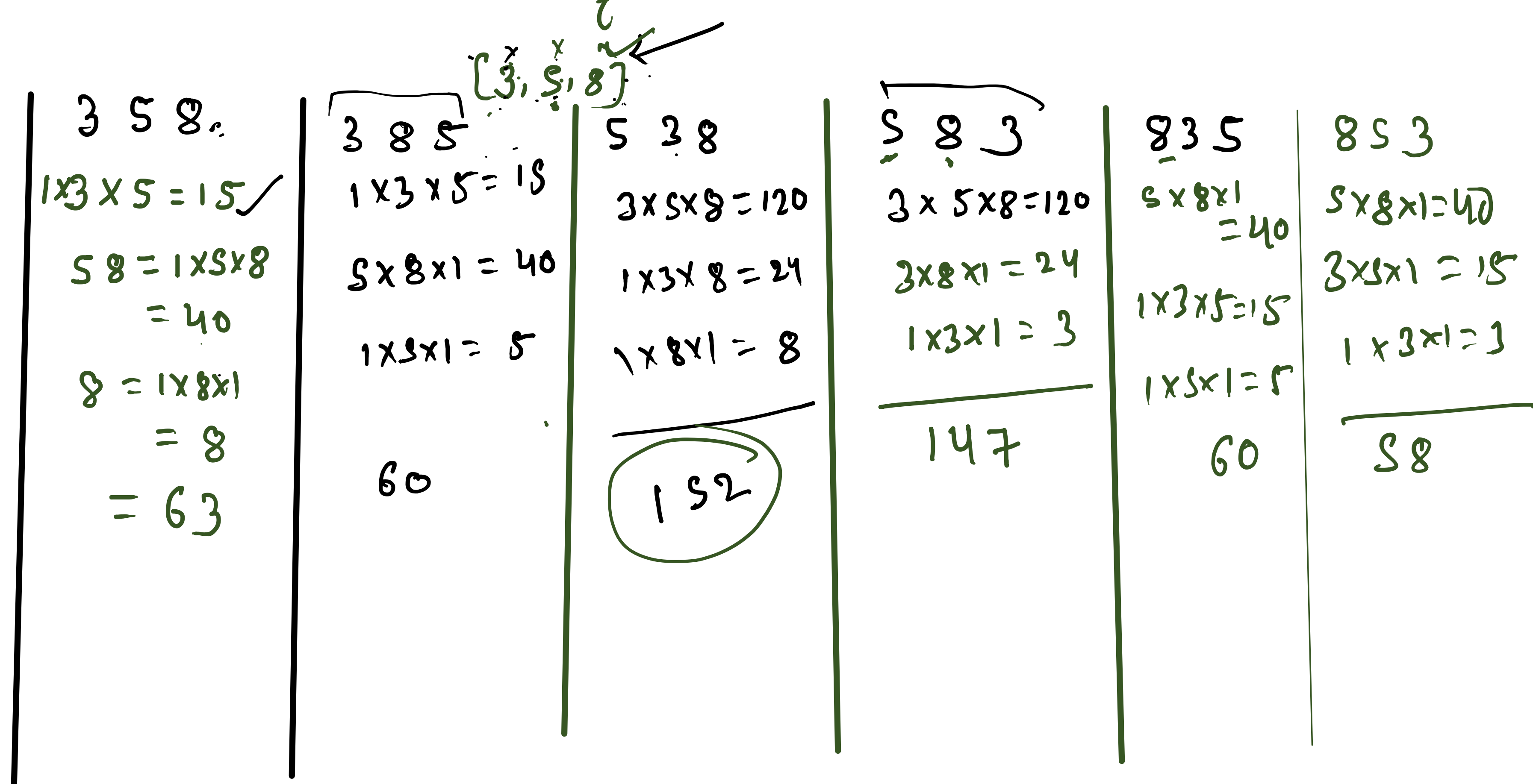
Input: nums = [3,1,5,8]
Output: 167 ✓✓

Explanation:

```

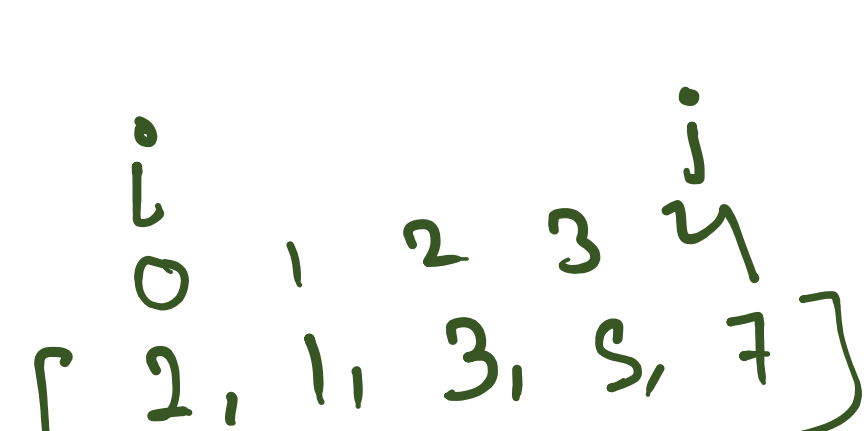
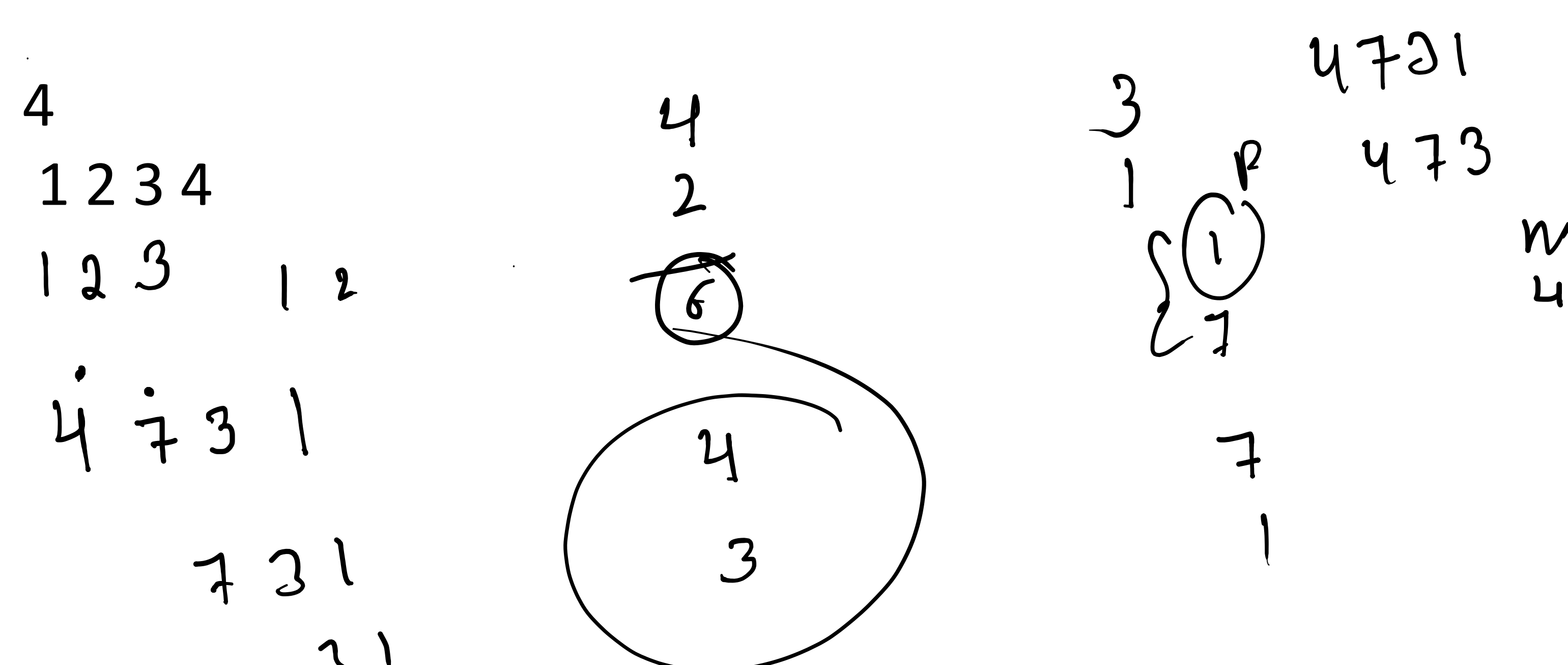
nums = [3,1,5,8] --> [3,5,8] --> [3,8] --> [8] --> []
coins = 3*1*5      + 3*5*8    + 1*3*8  + 1*8*1 = 167

```

$$\text{COINS} = 3 \times 1 \times 5 + 3 \times 5 \times 0 + 1 \times 5 \times 0 + 1 \times 0 \times 1 = 16$$


Optimal Game Strategy-II

Piyush and Nimit are playing a coin game. They are given n coins with values x_1, x_2, \dots, x_n where ' n ' is always even. They take alternate terms. In each turn, a player picks either the first coin or the last coin from the row and removes it from the row. The value of coin is received by that player. Determine the maximum value that Piyush can win with if he moves first. Both the players play optimally.



arr[i] \rightarrow litv j \rightarrow nimik
arr[i] \rightarrow (i, j-1) \rightarrow nimik

$$\text{arr}[i] \rightarrow [i, i-1] \rightarrow \text{next}(\text{mid})$$

$$\max \left[\text{arr}[i] + \min[R[i+2, j], R[i+1, j+1]], \text{arr}[j] + \min[R[i+1, j-1], R[i, j-2]] \right]$$