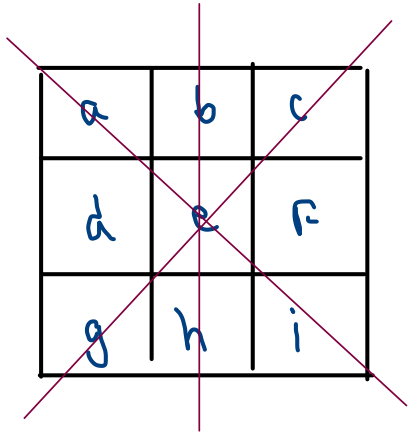
Magic squares : (i) a 3 x 3 matrix containing all unique elements 1 to 9

(ii) sum of each row = sum of each cols = sum of both diagonals.



$$a+b+c+d+e+f+g+h+i = 45$$

each row sum = 15 = each col sum = each diagonal sum

$$a+e+i + c+e+g + b+e+h = 45$$

$$\underbrace{a+b+c}_{15} + \underbrace{i+g+h}_{15} + 3e = 45$$

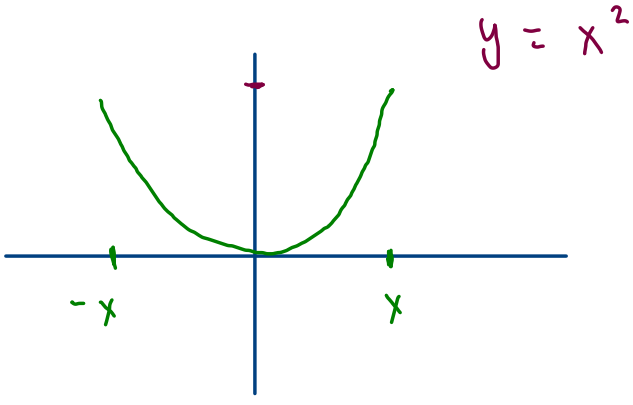
$$3e = 15$$

$$\boxed{e = 5}$$

977. Squares of a Sorted Array

Given an integer array `nums` sorted in **non-decreasing** order, return *an array of **the squares of each number** sorted in non-decreasing order.*

```
Input: nums = [-4,-1,0,3,10]
Output: [0,1,9,16,100]
```



16 1 0 9 100

arr : [-4, -1, 0, 3, 10]

ans : [0, 1, 9, 16, 100]

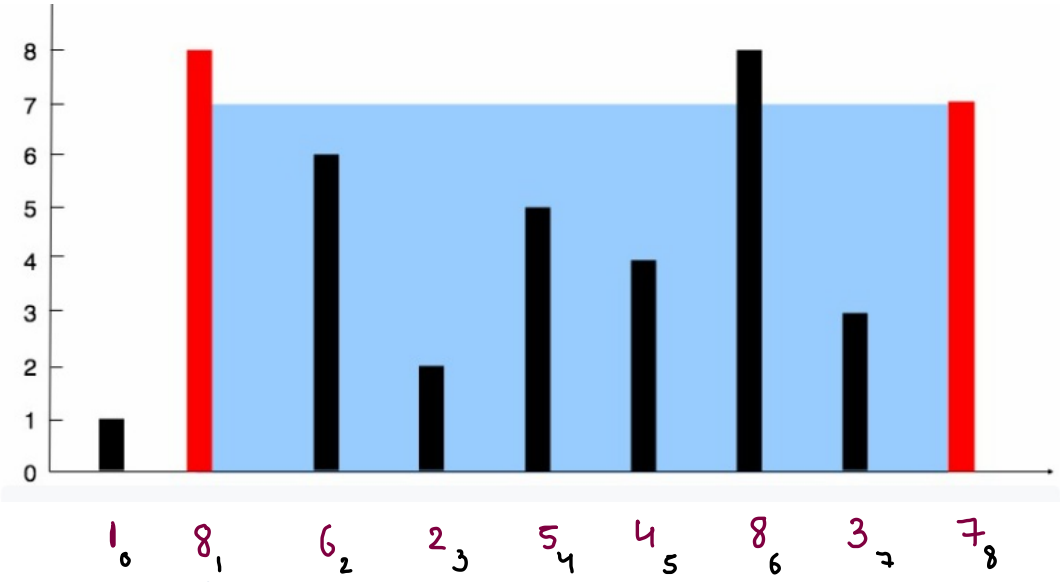
T : O(n)

-4 -1 0 3 10

ans 0 1 9 16 100

0 1 2 3 4

11. Container With Most Water

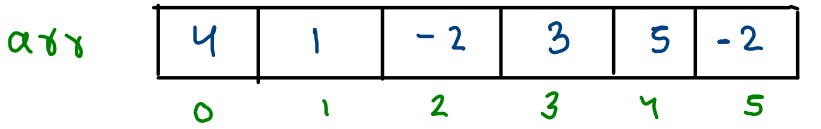


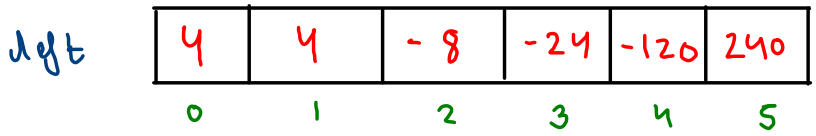

```
i = 0, j = n-1

while ( i < j ) {

int res = min (h[i], h[j]) * (j-i);

[ if( h[i] < h[j] ⟶ i++;
  else ⟶ j--;

}
```

why

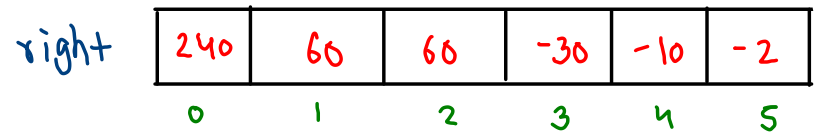
ans = ~~0~~ ~~8~~ 49

238. Product of Array Except Self

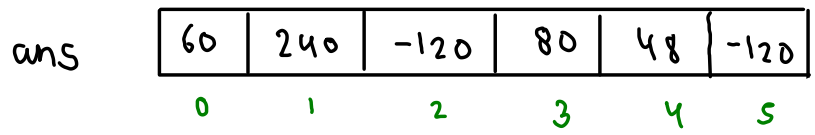




left[i] : product of elements 0 to i



right[i] : product of elements from i to n-1.



ans[i] : left[i-1] * right[i+1]

left[i-1]: 0 to i-1

right[i+1]: i+1 to n-1