

### 3 Sum

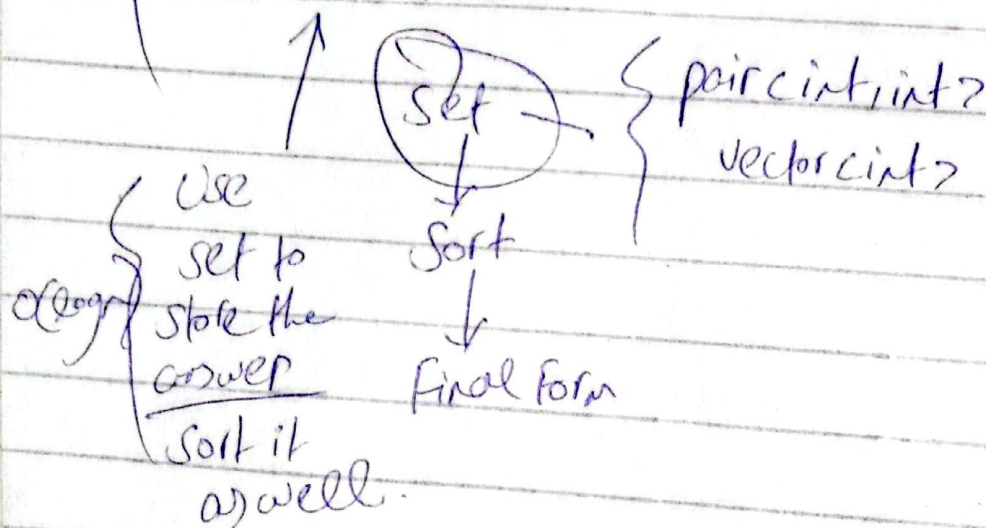
nums = [-1, 0, 1, 2, -1, 4]

$$-1 + 0 + 1 = 0 \text{ - target}$$

$$2, -1, -1 = 0$$

#### Brute force

$O(N^3)$  {  
for (i=0; i<n; i++) { nums[i]  
for (j=i+1; j<n; j++) { nums[j]  
for (k=j+1; k<n; k++) { nums[k]  
if (a+b+c==0)  
or store



#### Approach with Hashing

$$nums[i] + nums[j] + nums[k] = 0 \text{ target}$$

$$a + b + c = 0$$

first loop  
second loop  
No loop  
Use

$$a + b + c = \text{target}$$

$$c = \text{target} - a - b$$

for (i=0; i<n; i++) {  
tar = -nums[i]  
set<int> s



```

for (j = i+1; j < n; j++) {
    tofind = tar - nums[j]
    if (s.find(tofind) != s.end()) {
        found
    }
    return num
}

```

## 2 Pointer Approach

```

for (i = 0 to n)
    if (170 88 nums[i] == nums[i-1]) continue;
    j = i+1, k = n-1
    while (j < k) {
        sum = nums[i] + nums[j] + nums[k]
        if (sum > 0) k--
        if (sum < 0) j++
        if (sum == 0)
            H[i], H[j], H[k] → ans
            j++, k--
    }
}

```