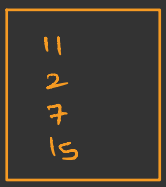
Two pointer

Ques Pair with sum equals k

11 2 7 15 K = 9

Brute Force → 2 for loops TC ⇒ $O(n^2)$ SC ⇒ $O(1)$

Hash Set TC ⇒ $O(n)$ SC ⇒ $O(n)$



2 pointers ① sort the array $(n \log n)$

2 7 11 15

n ⇒ $n + n\log n$

TC ⇒ $O(n \log n)$

SC ⇒ $O(1)$

Ques Triplet with sum equals k

Brute force ⇒ 3 nested loops ⇒ $O(n^3)$

1. Sort the array
2. Select 1st element


```
for(i = 0; i <= length - 3; i++) {
    l = i + 1;   r = arr.length - 1;
    while (l < r) {
        if (arr[l] + arr[r] + arr[i] == k) {
            save and return;
        }
        else if (arr[l] + arr[r] + arr[i] > k)
            r--;
        else l++;
    }
}
```

$n \log n + n^2$

TC → $O(n^2)$

Ques 2 unsorted array. Find pair with sum k

n

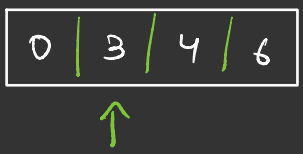
k = 8

m

Brute Force → 2 nested for loops

TC → O(m×n)

n+m+nlogn+mlogm



TC → O(max(nlogn, mlogm))