

## Target Sum Unique Pairs

T:  $n \log n$

S:  $O(1)$

target = 10

```
if (arr[i] + arr[j] == tar) {
```

```
    syso(arr[i], arr[j]);
```

```
    i++; j--;
```

```
}
```

```
else if (arr[i] + arr[j] < tar) {
```

```
    i++;
```

```
}
```

```
else {
```

```
    j--;
```

```
}
```

2    9    4    -1    8    11    8    5    2    12

↓ sort

-1    2    2    4    5    8    8    9    11    12

j

i

-1, 11

2, 8

# Target Sum Unique Triplet

target = 5

T:  $O(n^2)$

S:  $O(1)$

4 1 2 0 5 6 -2 3 0 5 7

Sort

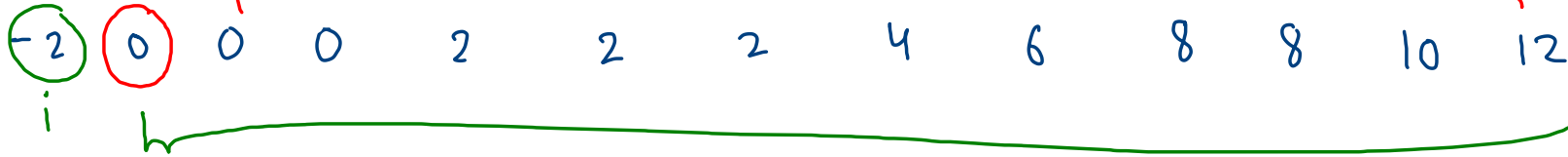
-2 0 0 1 2 3 4 5 5 6 7  
i

target - arr[i]    target' sum  
unique pairs

## 18. 4Sum

find unique pair  
with target =  $12 - 0$

target = 10



find unique  
triplet with target =  $10 - (-2)$

$-2, 0, 0, 12$

$-2, 0, 2, 10$

$-2, 0, 4, 8$

## K Sum - Target Sum Unique Set

$k$   
target

$\ominus$   
 $i$

$k = 4$

0, 4, target



1, 3, target'



2, 2, target''

$i, k, \text{target}$



$i+1, k-1, \text{target} - \text{arr}[i]$