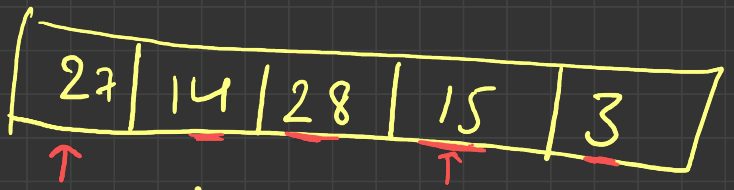
Bubble Sort

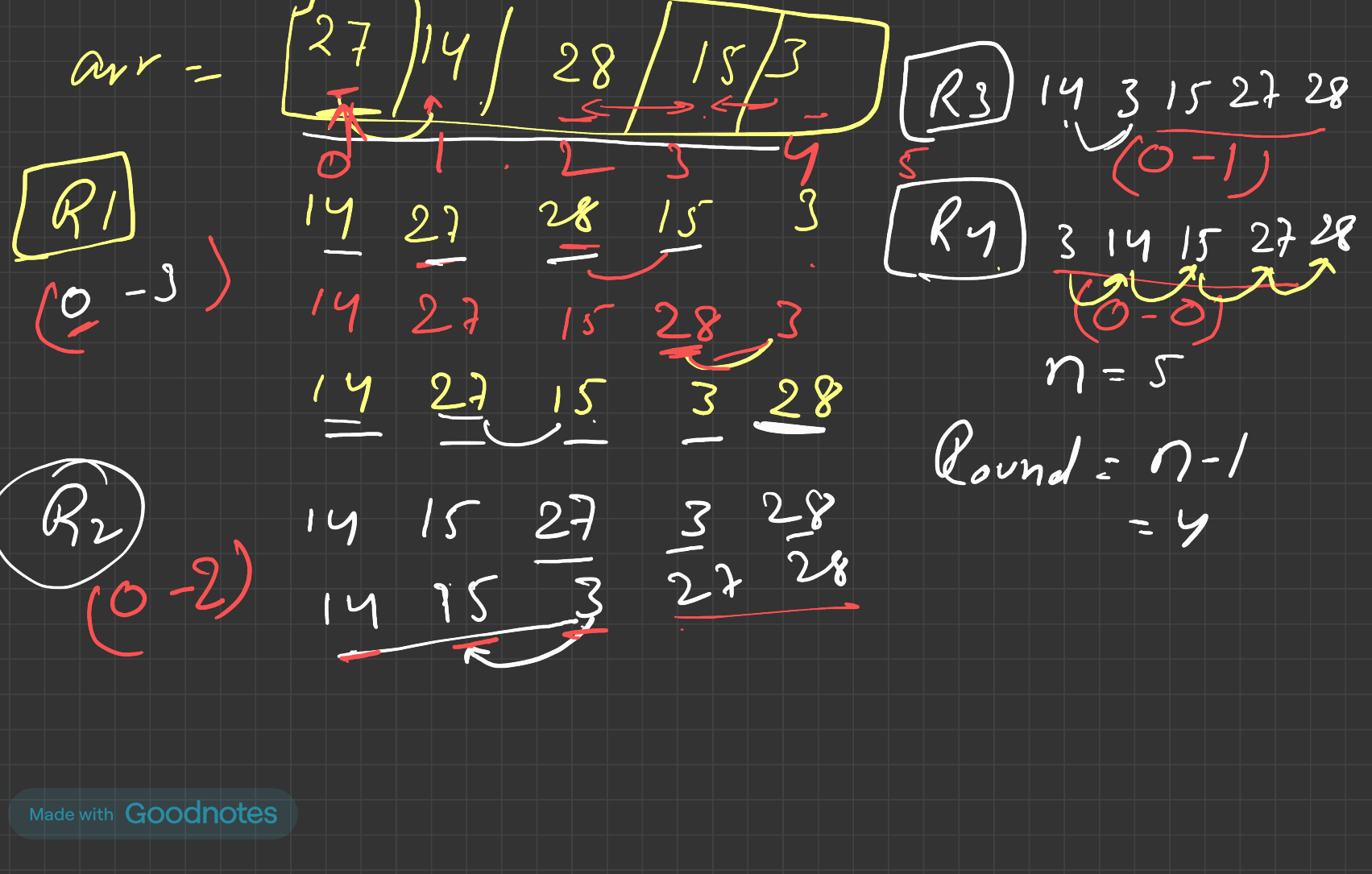


14 27 15 3 28

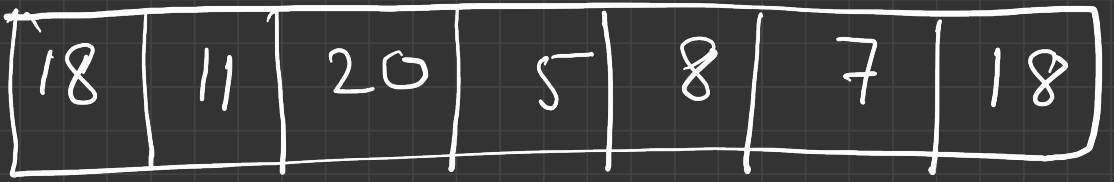
14 15 3 27 28

14 3 15 27 28

3 14 15 27 28



Q.



n

```
for( j=0; j<n-1; j++){
    if(arr[j] > arr[j+1])
        swap(arr[j], arr[j+1])
```

j = 0 1 2 3 4

n-2

```
for (i = 3; i>=0; i++) {
    for( j=0; j<i ; j++) {
        if (arr[j] > arr[j+1])
            swap (arr[j]; arr[j+1]
```

Space - Auxillary O(1)

Time

i = 0

= 0 to 0

1

Exec → n-1

n-2

n-1 + n-2 + ---- 1 = $\frac{n \times (n-1)}{2}$

$n^2 - n$ worst $\rightarrow O(n^2)$

Best $\rightarrow O(n)$, $\Omega(n)$

Avg $\rightarrow O(n^2)$

$\Theta(n^2)$

```
for (i = 3; i>=0; i++) {
  Bool swapped = 0;
    for( j=0; j<i ; j++) {
      if (arr[j] > arr[j+1])
        swap (arr[j], arr[j+1]
        swapped = 1;
      if (swapped == 0)
        break;
```