

# HOARE-PARTITION( $A, p, r$ )

```
1   $x = A[p]$ 
2   $i = p - 1$ 
3   $j = r + 1$ 
4  while TRUE
5      repeat
6           $j = j - 1$ 
7      until  $A[j] \leq x$ 
8      repeat
9           $i = i + 1$ 
10     until  $A[i] \geq x$ 
11     if  $i < j$ 
12         exchange  $A[i]$  with  $A[j]$ 
13     else return  $j$ 
```