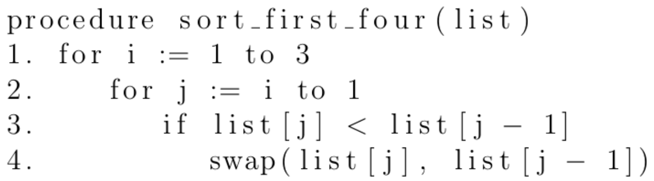
1. $O(1)$

2. $O(n^2)$

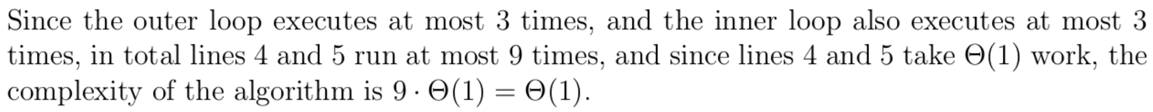
3. $O(n^2)$

4. $O(log(n))$

6.



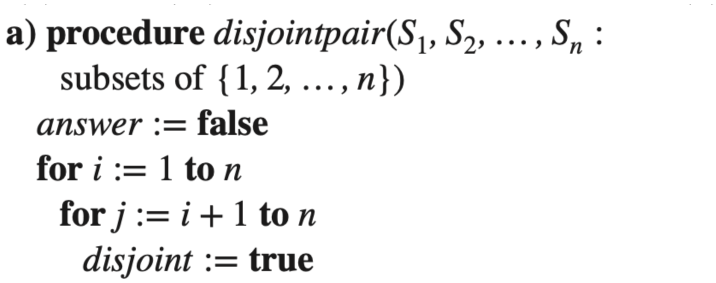
```
procedure sort_first_four(list)
1. for i := 1 to 3
2.     for j := i to 1
3.         if list[j] < list[j − 1]
4.             swap(list[j], list[j − 1])
```



Since the outer loop executes at most 3 times, and the inner loop also executes at most 3 times, in total lines 4 and 5 run at most 9 times, and since lines 4 and 5 take $\Theta(1)$ work, the complexity of the algorithm is $9 \cdot \Theta(1) = \Theta(1)$.

***Note:** We will not ever ask you to write your own pseudocode.

9. $O(n)$

11. 

```
a) procedure disjointpair($S_1, S_2, \ldots, S_n$ :
        subsets of $\{1, 2, \ldots, n\}$)
    answer := false
    for $i := 1$ to $n$
        for $j := i + 1$ to $n$
            disjoint := true
```

***Note:** We will not ever ask you to write your own pseudocode.