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Homely - on - 3

Q1.)

```
n = f(n)
n = 1;
for i = 1 : n
    for j = 1 : n
        n = n + 1;
```

$$T(n) = \sum_{i=1}^{n} \sum_{j=1}^{n} 1$$

$$= n^2$$

$$\therefore T(n) = n^2.$$

$$= O(n^2).$$

```
n = f(n)
n = 1;
y = 1;
for i = 1 : n
for j = 1 : n
    n = n + 1;
    y = 1 + j;
```

Q4) Yes, will take significantly longer time because of an additional operation in the 'y' loop.

However since, its constant and O(1) it will take the same time as 'n' operation in the previous line.

Q5.) will not effect the results as the time will remain same $O(n^2)$. Hence, correctness does not effect complexity.