

TIME COMPLEXITY QUESTIONS

Question: Find the Time Complexity of the following:

a)

```
a. int i, j, k = 0;
b. for (i = n / 2; i <= n; i++) {
    for (j = 2; j <= n; j = j * 2) {
        k = k + n / 2;
e. }
f. }</pre>
```

- A. O(n)
- B. O(N log N)
- C. O(n^2)
- D. O(n^2Logn)



b)

Here, k is some constant value

- A. O(n)
- B. O(k)
- C. O(logkn) (= logn of base k)
- D. O(lognk) (= logk of base n)

c)

Algorithm A and B have a worst-case running time of O(n) and O(logn), respectively. Therefore, algorithm B always runs faster than algorithm A.

- A. True
- B. False
- d) Find the time & space complexity of floorSqrt function in the following code to calculate square root of a number :

```
class SqrtNum {
  static int floorSqrt(int x)
      System.out.print(floorSqrt(x));
```

e) Find the time & space complexity of the following code:

```
int a = 0;
for (int i = 0; i < n; ++i) {
```