1.) Find the time complexity for the following scenarios

a.) for(i=1;i<=n;i++)

for(j=i;i<=n;j++)

printf("Hi");

ans.)

i j

1. n
2. n-1
3. n-2

n 1

time complexity = n + (n-1) + (n-2) + (n-3) +…..+ 1

= (n+n+….+n)-(1+2+….+(n-1))

=highest degree = n^2

T(n) = O(n^2)

b.) for(i=1;i<=n;i\*=3)

for(j=1;i<=n;j++)

printf("Hello");

ans.)

i j

1. n
2. n

log n n

time complexity = n+n+….(log n times)…+n

= nlogn

T(n)= O(nlogn)