Course ID: CS 501
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Hw3. 02/04
Description:
http://npu85.npu.edu/~henry/npu/classes/algorithm/geeksforgeeks/slide/exercise_geeksforgeeks.html
Q4 ==> Prove that the Big-O of the following loop is O(N)
Q5 ==> Find the Big-O of the following loops

4. Prove that the Big-O of the following loop is O(N)

```
for (int i = 1; i <= n; i += c) {
   // some O(1) expressions
}
```

Answer: O = n / c * O(1) = 1 / c * n * O(1) = n * O (1) = O (n) ;

5. Find the Big-O of the following loops

```
// c is constant
for (int i = 1; i <=n; i += c) {
   for (int j = 1; j <=n; j = pow(i, c)) {
      // some O(1) expressions
   }
}

for (int i = n; i > 0; i += c) {
   for (int j = i+1; j <= n; j *= c) {
      // some O(1) expressions
}
```

Answer:
Part 1: O = O(n) * O (loglog n) = n O (loglog n) ;
Part 2: O = O(n) * O (log n) = n O (log n) ;

O = n O (loglog n) + n O (log n) = n O (log n) ;