

```

1  #include<bits/stdc++.h>
2  using namespace std;
3  /*
4      natural number :
5      1 + 2 + 3 + 4 .....+ (n-1) + n
6
7      sum(n) = sum(n-1) + n;
8  */
9
10 int sum(int n)
11 {
12     if(n == 0)
13     {
14         return 0;
15     }
16     else{
17         return sum(n-1) + n;
18         // n add in returning time;
19     }
20 }
21
22 int main()
23 {
24     int x = 5;
25
26     cout << sum(x) << endl; // 15
27 }
28
29 /*
30     sum(5)  -> 15
31     |
32     sum(4) + 5; => 10 + 5
33     |
34     sum(3) + 4; => 6 + 4
35     |
36     sum(2) + 3; => 3 + 3
37     |
38     sum(1) + 2; => 1 + 2
39     |
40     sum(0) + 1; => 0 + 1;
41     |
42     x return 0
43
44
45 */

```