**Count total set bits**

[bit](http://www.practice.geeksforgeeks.org/tag-page.php?tag=bit&isCmp=0)

[Amazon](http://www.practice.geeksforgeeks.org/tag-page.php?tag=Amazon&isCmp=1)

Find the sum of all bits from numbers 1 to N.

**Input:**

The first line of input contains an integer T denoting the number of test cases.  
The first line of each test case is N.  
  
**Output:**

Print the sum of all bits.  
  
**Constraints:**

1 ≤ T ≤ 100  
1 ≤ N ≤ 1000  
  
**Example:**

**Input:**  
2  
4  
17

**Output:**  
5  
35

**Explanation:**  
An easy way to look at it is to consider the number 6:  
0|0 0  
0|0 1  
0|1 0  
0|1 1  
-|–  
1|0 0  
1|0 1  
1|1 0

\*\*For More Examples Use Expected Output\*\*

<http://www.practice.geeksforgeeks.org/problem-page.php?pid=500>

#include <iostream>

#include <stdio.h>

#include <map>

#include <vector>

#include <algorithm>

#define ll long long int

using namespace std;

int main() {

int t;

scanf("%d", &t);

while(t--) {

int n;

scanf("%d", &n);

int sum =0;

for(int i =1; i<=n; i++) {

int c = i;

while(c > 0) {

sum += c%2;

c/=2;

}

}

cout << sum << endl;

}

return 0;

}