UVa Online Judge

13083 Yet another GCDSUM

Given the value of N, you will have to find the value of S. The definition of S is given in the following code:

```
S=0;
for(i=1;i<=N;i++)
  for(j=1;j<=N;j++)
    if((N \% i)==0 && (N \% j)==0)
        S+=gcd(i,j);
```

/*Here '`gcd()`' is a function that finds the greatest common divisor of the two input numbers. '`%`' is standard remainder sign from C/C++/java syntax where 'a `%` b' is the remainder of a modulo b, so '`(`N `%` i`)== 0 && (`N `%` j`) == 0`' means N is divisible by both i and j*/

Input

First line of the input is T ($T \leq 100$), then T test cases follows in next T lines. Each line contains an integer N ($1 \leq N \leq 100000000000000$ or 10^{14}). The meaning of N is given in the problem statement.

Output

For each test case print a line in '`Case` I`:` S' format where I is case number and S is the value for the N of this case. The value of S will fit in a **64-bit** signed integer.

Sample Input

```
12
1
2
3
4
5
6
7
8
9
10
1000
10000
```

Sample Output

```
Case 1: 1
Case 2: 5
Case 3: 6
Case 4: 15
Case 5: 8
Case 6: 30
Case 7: 10
```

```
Case 8: 37
Case 9: 23
Case 10: 40
Case 11: 8584
Case 12: 97027
```