

Binary Conversion

Problem Description

Convert binary numbers into decimal numbers and compute their sum.

Input

The input consists of several cases. The first line of each case contains only one positive integer N indicating the number of binary strings in this case, followed by N binary strings, each in one line.

Each binary string has at most 16 digits, and each digit is either 0 or 1. The case of $N=0$ signs the end of input, and you don't need to compute this case.

Output

For each case, print the result in one line. The result is at most $2^{32}-1$.

Sample Input

```
2
1010000
000001
3
11110000
10000000
00000
0
```

Sample Output

```
81
368
```