DWITE '10 R4 #3 - Binary Weight

Time limit: 0.1s **Memory limit:** 64M

DWITE Online Computer Programming Contest, January 2011, Problem 3

The binary weight of a number is the amount of 1s in the number's binary representation. For example, 43 in binary is 101011, so the binary weight is 4. Given a decimal number, we want to find the next greater decimal number that has the same binary weight. In this case, 45 (101101) is such a number.

The input will contain 5 lines, integers $1 \leq N \leq 1\,000\,000\,000$.

The output will contain 5 lines, each corresponding to the next decimal number with the same binary weight as in the input.

Reminder: a binary representation of a number is the sum of powers of 2, where 1 means that power is included, and 0 means that it's not. So a binary 43 is $1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$, which evaluates to $1 \times 32 + 0 \times 16 + 1 \times 8 + 0 \times 4 + 1 \times 2 + 1 \times 2 = 32 + 8 + 2 + 1 = 43$ (101011).

Sample Input

```
3
4
10
7
8
```

Sample Output

```
5
8
12
11
16
```

Problem Resource: DWITE