Consider the following bitfall of width 15:

```
111111111111111
101010101010101
001000100010001
000000100000001
000000000000001
```

The *bitfall* of width $n > 0$ is the list of n-bit strings defined as follows. The first string has all n bits set to 1. Each string thereafter is obtained from the previous one by scanning from rightmost (least significant) to leftmost (most significant) position, toggling every other 1 you see to a 0. The rightmost bit of each string remains 1, and the last string has all bits except the rightmost bit set to 0. If the strings represent numbers in unsigned binary format, then those numbers written in decimal are

$$32767 \quad 21845 \quad 4369 \quad 257 \quad 1$$

Input Format

Each input line contains a number n such that $0 < n < 63$.

Output Format

For each number n in the input, output a line containing the decimal numbers represented by the bitfall of width n, as shown in the output sample.

Input Sample

```
1
3
4
11
15
20
35
```

Output Sample

```
1
7 5 1
15 5 1
2047 1365 273 257 1
32767 21845 4369 257 1
1048575 349525 69905 65793 65537 1
34359738367 22906492245 4581298449 4311810305 4295032833 4294967297 1
```