Problem 3—Steganography

Professor Plum thinks of himself as an amateur spy because he likes to dabble in steganography. *Steganography* is the process of concealing a secret message, image, or video within another message, image, or video. His latest scheme is to send a text file of non-negative integers one per line. The integers are nearly random, except each contains an embedded character code corresponding to a character in the secret message. If each integer is divided by 30, then the remainder is a numeric character code corresponding to characters according to:

- the character codes 1, 2, 3, 4, 5 …, 21, 22, 23, 24, 25, 26 correspond to the letters `'A'`, `'B'`, `'C'`, `'D'`, `'E'`, …, `'U'`, `'V'`, `'W'`, `'X'`, `'Y'`, `'Z'` respectively,
- the character code 0 corresponds to `' '` (space) character,
- the character code 27 corresponds to `'.'` (period) character,
- the character code 28 corresponds `'?'` (question mark) character, and
- the character code 29 corresponds to the end-of-line.

Input Format

The input consists of multiple lines with each containing a single non-negative integer corresponding to a character in the secret message as described above.

Output Format

The sequence of decoded characters including end-of-lines.

Input Sample

```
31
0
33
61
62
117
30
93
121
14
29
39
50
30
2
65
88
59
```

Output Sample

```
A CAB. CAN
IT BE?
```