

## Problem 6—I Will Write All Of My Lines

Mrs. Krabappel frequently asks Bart to stay after school to write lines on the board. It turns out that Bart has a device that will allow him to write multiple lines at the same time, as long as the number of lines he is writing is exactly a perfect square. If he has to write a number of lines that is not a perfect square, he has to break it up. If Bart had to write 32 lines, for example, he could use his device to write 25 lines at once, then 4 lines at once, then 1, then 1, then 1, for a total of five lines he manually has to write. However, he'd be better off breaking up 32 into 16 and 16; then, he'd only have to write two physical lines.

**INPUT SPECIFICATION.** Each input case is an unsigned (positive) decimal integer indicating the number of lines Bart has to write. A 0 follows the last case and is not to be processed. Any number of spaces or **<EOLN>**'s may come before, between, or after the input cases and the terminating 0. These numbers represent the number of lines Bart has to write. No number will exceed one million.

**OUTPUT SPECIFICATION.** The output cases appear in the same order as the corresponding input cases. The output case corresponds to the minimum number of actual lines Bart has to write if he uses his device intelligently. The format is too easy to specify; just follow the example below.

**SAMPLE INPUT.**

```
1•4•32•999999<EOLN>
0<EOLN>
<EOF>
```

**SAMPLE OUTPUT.**

```
Case•1:•Bart•can•write•1•lines•in•1•iterations.<EOLN>
<EOLN>
Case•2:•Bart•can•write•4•lines•in•1•iterations.<EOLN>
<EOLN>
Case•3:•Bart•can•write•32•lines•in•2•iterations.<EOLN>
<EOLN>
Case•4:•Bart•can•write•999999•lines•in•4•iterations.<EOLN>
<EOLN>
<EOF>
```