Problem 2—More Appropriate Numeric Bases

What Arthur Dent and Ford Prefect discovered when they pulled out letters from the Scrabble bag was that The Ultimate Question of Life, the Universe, and Everything to which the answer was "Forty-two," was "What do you get if you multiply six by nine?" Perhaps God thinks in base 13, because six times nine totally is forty-two in base 13.

Given a multiplication problem, you are to compute the numerical bases in which the answer is correct. Your digits are 0-9 and A-Z (representing the values between 10 and 35). You never have to consider bases greater than 36 or less than 2. The numerals may be long, but the represented numbers will not exceed the expectations of a standard int.

INPUT SPECIFICATION, Each line of the input represents a case, and each case consists of three integers (in some base or other) separated by one space. All lines of the input file are to be processed.

OUTPUT SPECIFICATION. The output cases are to be processed in the same order in which they appear in the input. Follow the sample below. Note that the output should be grammatically correct (the Oxford comma is perfectly proper). Note that an extra **<EOLN>** follows each data case Note also that the valid bases are to be listed in increasing order and all on the same line.

SAMPLE INPUT.

```
6·9·42<EOLN>
11·11·121<EOLN>
1·Y·Y<EOLN>
1·Y·Z<EOLN>
<EOF>
```

SAMPLE OUTPUT.

```
Case·1:·6·x·9·equals·42·in·base·13.<EOLN>
<EOLN>
Case·2:·11·x·11·equals·121·in·bases·3,·4,·5,·6,·7,·8,·9,·10,·11,·12,·13,·14,·15,·16,·1
7,·18,·19,·20,·21,·22,·23,·24,·25,·26,·27,·28,·29,·30,·31,·32,·33,·34,·35,·and·36.
<EOLN>
<EOLN>
Case·3:·1·x·Y·equals·Y·in·bases·35·and·36.<EOLN>
<EOLN>
Case·4:·1·x·Y·never·equals·Z.<EOLN>
<EOLN>
<EOF>
```