Problem 1—Scatter Point Plot

This problem deals with generating a plot of points that fit on the display screen. The Y axis is vertical and contains 20 lines (one *Y* value for each row); the X axis is horizontal and contains 12 positions (each *X* value takes 5 columns). Using the output file, character display a X,Y plot including grid lines and axis labelling as shown in the sample below. Print *Y*-values right-justified in a field of width 4 ans with `:' in column number five. None of the lines in the output file may contain trailing blanks. That is, every line will end with the last non-blank character in it.

INPUT SPECIFICATION.

The first line will contain a nonnegative integer representing the lowest X value, one space, a positive integer representing the difference between consecutive X-values and **<EOLN>**. The second line is formatted the same as the first but contains the corresponding information about the Y-values. Following the second line will be any number of lines containing two integers separated by a comma and followed by **<EOLN>** representing an (X,Y) value that needs to be plotted. The first integer is the X-value; the second is the Y-value. This list is terminated by **<EOF>**. Note that this input file will contain only one data case to be processed.

OUTPUT SPECIFICATION.

Each point read in must be rounded to the nearest displayed X- and Y-value. If a value falls halfway between two X- or Y-values, it is to be rounded up. If only one X,Y value falls at a particular point display the character 1. If two X,Y values fall at a particular point display the character 2; if three X,Y values fall at a particular point display the character 3; etc. If no X,Y value falls on a point do not print a number there at all.

In case that there were ten or more X,Y values falling at a point, the numbers have to be *centered* on the cross-marks in the following way:

```
1000
 100
 10
  1
```

The X-axis labels are to be centered the same way. The Y-axis labels are to be right-justified as described above.

SAMPLE INPUT.

```
100·50<EOLN>
0·5<EOLN>
100,20<EOLN>
101,22<EOLN>
100,23<EOLN>
100,0<EOLN>
100,3<EOLN>
649,0<EOLN>
649,3<EOLN>
647,2<EOLN>
500,85<EOLN>
206,21<EOLN>
325,43<EOLN>
612,8<EOLN>
129,19<EOLN>
501,83<EOLN>
<EOF>
```

SAMPLE OUTPUT.

```
··95:<EOLN>
··90:<EOLN>
··85:···········································2<EOLN>
··80:<EOLN>
··75:<EOLN>
··70:<EOLN>
··65:<EOLN>
··60:<EOLN>
··55:<EOLN>
··50:<EOLN>
··45:···························1<EOLN>
··40:<EOLN>
```

```
··35:<EOLN>
··30:<EOLN>
··25:····1<EOLN>
··20:····2····1····1<EOLN>
··15:<EOLN>
··10:·····················································1<EOLN>
···5:····1·····················································1<EOLN>
···0:····1·····················································2<EOLN>
····+----+----+----+----+----+----+----+----+----+----+----+----+<EOLN>
·····100··150··200··250··300··350··400··450··500··550··600··650<EOLN>
<EOF>
```