5437 PostScript Emulation

PostScript® is widely used as a page description language for laser printers. The basic unit of measurement in PostScript is the point, and there are assumed to be exactly 72 points per inch. The default coordinate system used at the beginning of a PostScript program is the familiar Cartesian system, with the origin (the point with x and y coordinates both equal to zero) at the lower left comer of the page.

In this problem you are required to recognize a small part of the PostScript language. Specifically, the commands listed below must be recognized. All commands will be given in lower-case letters. When the word number appears in the command description, a floating point value, with an optional sign and decimal point will be present in the input data. When two numbers appear in a command, the first refers to the x coordinate, and the second to the y coordinate. For simplicity, each command will appear on a line by itself, and a single blank will separate each component of the command. The end of line character will immediately follow each command, and a line with a single asterisk in column one will terminate the input.

You should preserve the order of operations.

number `rotate`

> ***number*** represents the measure of an angle. This command rotates the coordinate system that many degrees counterclockwise about the current origin. This does not affect any lines that have already been drawn on the page.
>
> Example: '`90 rotate`' will rotate the axes 90 degrees counterclockwise, so the positive y axis now points to the left, and the positive x axis points up.

number number `translate`

> Moves the origin of the coordinate system to the position specified. The values are interpreted relative to the current origin.
>
> Example: '`612 792 translate`' would move the origin of the coordinate system to the upper right comer of the page. Now only points with negative x and y components will correspond to points on the physical page (assuming an 8.5" by 11" page in the "portrait" orientation).

number number `scale`

> This command applies the scaling factors given to the x and y coordinates. In effect, the actual x and y sizes of objects are multiplied by the respective scale factors. **Scaling will affect everything on that directions no matter you rotate later.**
>
> Example: '`3 2 scale`' would cause a line drawn from (0,0) to (72,72) to appear as if it was drawn from the lower left corner of the page to a point three inches to the right of the left edge of the paper and two inches up from the bottom edge of the paper, assuming the original coordinate system was in effect just before the command.

number number `moveto`

> The current point is moved to the coordinates specified.
>
> Example: '`72 144 moveto`' would move the current point to one inch from the left edge of the paper, and two inches up from the bottom edge, assuming the original coordinate system was in effect.

number number `rmoveto`

This command is like `moveto`, except the numbers specified give the coordinates of the new current point relafive to the current position.

Example: '`144 -36 rmoveto`' would move the current point set by the previous example two inches further to the right and one-half inch lower on the page. Thus the coordinates of the current point become (216,108). Notice that numbers can be negative!

number number `lineto`

Draws a line from the current position to the position specified by the numbers. The current position becomes the position specified in the command.

Example: '`216 144 lineto`' would draw a line from the current position to the point (216,144), and leave the current point there. If we assume the current position from the previous example, this would be a line from (216,108) to (216,144), or a half-inch vertical line.

number number `rlineto`

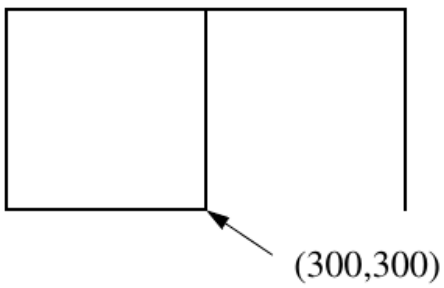
This is similar to '`lineto`', but the coordinates given in the command are relative to the current position. Again, the end of the line that is drawn becomes the new current position.

Example: '`0 144 rlineto`' will draw a two inch horizontal line from the current position two inches to the right. Using the current position left in the previous example, this draws a line from (216,144) to (216,288), and leaves the current point at (216,288).

Input and Output

Your task is to read one of these small PostScript programs and to display a program that will produce the same effect *without* using the '`rotate`', '`translate`' or '`scale`' commands. That is, each '`moveto`', '`rmoveto`', '`lineto`', and '`rlineto`' command in the original (input) program should appear in your output (most likely with modified numbers), but the '`rotate`', '`translate`' and '`scale`' commands in the input must not appear in the output. Assume the original coordinate system is in effect at the beginning of execution. The numbers used with the commands in the program you produce must be accurate to at least two fractional digits.

Note: The figure drawn by sample commands below is illustrated on the right. Each of the lines is exactly one inch long.



Sample Input

```
300 300 moveto
0 72 rlineto
2 1 scale
36 0 rlineto
1 -4 scale
0 18 rlineto
1 -0.25 scale
0.5 1 scale
300 300 translate
90 rotate
0 0 moveto
0 72 rlineto
2 1 scale
36 0 rlineto
```

```
1 -4 scale
0 18 rlineto
*
```

Sample Output

```
300 300 moveto
0 72 rlineto
72 0 rlineto
0 -72 rlineto
300 300 moveto
-72 0 rlineto
0 72 rlineto
72 0 rlineto
```