

2731 Wacmian Numbers

In the supposedly uninhabited Wacmahara Desert, a tribe of unusual people has been discovered. The Wacmians have only 2 fingers and a thumb on each hand, and have invented their own numbering system. The digits they use and the symbols they use for digits are quite unusual, but anthropologists have been able to represent them as follows:

- % represents 0
-) represents 1
- ~ represents 2
- @ represents 3
- ? represents 4
- \ represents 5
- \$ represents -1 (yes, they even have a negative digit)

As you may expect, their system is base 6 where each place value is 6 times the value to its right, as in the following examples:

-)@% is $1 * 6^2 + 3 * 6 + 0 = 36 + 18 + 0 = 54$
- ?\$~~ is $4 * 6^3 + (-1) * 6^2 + 2 * 6 + 2 = 864 - 36 + 12 + 2 = 842$
- \$~~ is $(-1) * 6^2 + 2 * 6 + 2 = -36 + 12 + 2 = -22$

Your task is to take Wacmian numbers and represent them as standard base 10 numbers.

Input

Input consists of Wacmian numbers, one per line. Each number consists of a sequence of 1 to 10 Wacmian digits. A single '#' on a line by itself indicates the end of input.

Output

Output will be the corresponding decimal numbers, one per line.

Sample Input

```
)@%
?$~~
$~~
%
#
```

Sample Output

54
842
-22
0