Some newspapers attempt to increase their sales by offering puzzles that challenge the readers and occupy the time of their daily commute.

Alfakodo is one such puzzle that asks for unique numeric values to be assigned to the twenty-six letters of the English alphabet, subject to given constraints. Each constraint is given as a clue in the form of a simple arithmetic expression. For example, A=N-X.

Since the puzzle is not meant to frustrate the reader, the puzzle is constructed is such a way that throughout the solution process there is always at least one letter whose value can be ascertained.

**Input**

The input starts with an integer \( N \), on a line by itself, which indicates the number of test cases. \( 1 \leq N \leq 100 \).

The description of each test case consists of twenty six (26) lines, one line for each letter of the English alphabet. Each line consists of two or three parts, separated by single spaces:

1. The first part is a letter of the alphabet from A to Z, inclusive.
2. The second part is an arithmetic expression that consists of two letters separated by one of the four operations (+, -, / and *).
3. The third part, if present, is an integer value in the range of one (1) to fifty (50), inclusive.

**Output**

For each test case the output consists of a single line that contains the values of the alphabet letters, from A to Z, separated by single spaces.

**Sample Input**

```
1
A N-K
B Z-I
C A+N 21
D Y-W
E R+P 8
F I+U
G Y+I 39
H Q+R
I I/R 2
J Q-W 22
K I+P
L L+R
M H-F
N E+P
O C-V 5
P P/R
Q L-I
R H-Q
S F+W
T Y-B
U G-J
V V*R
W X-C
X N+V
Y G-I
Z C+P
```

**Sample Output**

```
6 26 21 27 8 19 39 33 2 22 9 34 14 15 5 7 32 1 29 11 17 16 10 31 37 28
```