

Calculator for Arrays

As you are clever programming. it's required from you to develop an advanced calculator that perform +,-,*,/,%,^ between 2 arrays with the same size

for example:

3 4 5 6

+

5 6 3 1

so the result will be 8 10 8 7.

in the division operation print "Error" when you divide by 0.

Input

input will contain several lines.

First line contain N where N is number of instructions , $1 \leq N \leq 100$.

next N line contain each instruction that will be in form of

n a0,..an-1 op b0,..bn-1

where n is size of both arrays, (a0,..,an-1) first array elements , op is operation (+,-,*,%,/,^)
(add,subtract,multiply,mode ,divide,power),(b0,..,bn-1) second array elements.

All numbers will be integers numbers between [1,1000]

Output

N lines each contain result of performing each instructions

print endl after each instruction output

Example

Input:

2

2 3 4 ^ 2 2

3 1 1 1 + 3 4 5

Output:

9 16

4 5 6