

Arithmetic Operations

In this question, you will be asked to implement 4 operations on two large natural numbers. The operations are as follows:

- 1) Add(a, b) : Compute $a + b$
- 2) Subtract(a, b) : Compute $a - b$. You are given that $a > b$
- 3) Multiply(a, b) : Compute $a * b$
- 4) Divide(a, b) : Compute a / b .

Input

The first line contains t : the number of test cases.

t test cases follow

Each test case contains 3 lines:

The first line contains two space separated integers n_1 and n_2 denoting the number of digits in the two numbers.

The second line contains the two space separated sequences a and b of n_1 and n_2 digits respectively.

The third line contains the opcode. If the opcode is 1, then the output should be the result of Add(a, b), if 2 then Subtract(a, b), if 3 then Multiply(a, b) and if 4 then Divide(a, b).

Output

For each test case, print the corresponding output on a new line

Constraints

$$1 \leq t \leq 10$$

$$10 \leq n_1, n_2 \leq 1000$$

Example

Input:

```
4
9 9
845236792 426347821
1
9 9
845236792 426347821
2
9 9
845236792 426347821
```

3
9 9
845236792 426347821
4

Output:

1271584613
418888971
360364864498230232
1