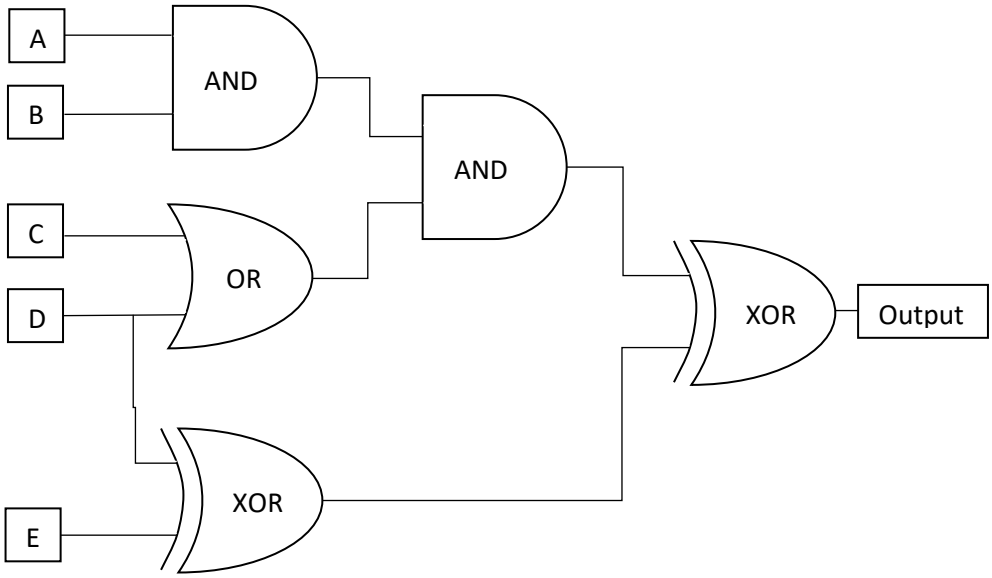
Twisted Logic

Mervyn has a unique talent. Mervyn alleges, “Given a block diagram of logic gates, no matter how complex, I can tell you what the output will be for any given input in an instant!” Mervyn attributes this “skill” to “This one time I burnt my finger on a shorted out CPLD.” You think it’ is either that or years staring at confusing datasheets while working as an electrical engineer. Regardless; you want to verify Mervyn’s claim, the one about his special talent, not the one about his burnt appendage. You draw up a diagram of AND, OR, and XOR gates shown below and hand Mervyn a list of inputs as well. Unfortunately you still need to write a program to verify Mervyn’s accuracy.



Note that the gates shown actually have multiple input lines, for the purpose of this problem think of the inputs to the gates as integers. The integers are evaluated bitwise to produce output. An example is seen in the figure.

Example: Simple examples for 2 inputs A and B running through only one gate are shown below.

	A	B	A AND B	A OR B	A XOR B
Decimal	151055	235045	132613	253487	120874
Binary (leading zeroes omitted)	100100111000001000	111001011000100000	100000011000000000	111101111000101000	111011000000101000

Input

There is a single positive integer T on the first line of input. Then follow T test cases each on new lines. A test case consists of 5 positive integers A, B, C, D, E Separated by spaces.

Output

Output the correct answer for the given inputs running through the diagram provided above.

Constraints

1 <= T <= 1000

0 <= A, B, C, D, E <= 1000000

Sample Input

3

1 2 3 4 5

5 4 3 2 1

1000000 100000 1000 100 10

Sample Output

A

B

C