

Problem I: Number Convertor

In this problem, you are given two positive integers, a and b followed by n numbers c_1, c_2, \dots, c_n . Using four basic arithmetic operations (addition, subtraction, multiplication and division (use floor to reach an integer)) and only the given numbers, convert a into b . For instance suppose $a = 2$ and $b = 10$ and the numbers $c_1 = 2, c_2 = 3$ are given to you. Two different ways to convert a to b are as follow:

1. First multiply a by c_2 , then add c_1 to the result for two times.
2. Add c_1 to a , 4 times.

There is just one more point that you should consider; different arithmetic operations have different costs. These costs are represented as a $n \times 4$ table, in which the cell $(i, 1), (i, 2), (i, 3), (i, 4)$ of this table contains the cost of addition, subtraction, multiplication and division with c_i as a second operand respectively. You should find the minimum cost to convert a to b such that you never reach a number more than 10^5 and less than zero.

Input

The number of test cases comes in the first line. For each test case, first there are three integer $1 \leq a, b \leq 10^5$ and $1 \leq n \leq 10$. Then you are given n positive integer c_1, c_2, \dots, c_n . Finally, in the last n lines in each line there are 4 positive integer that represent cost of operations.

Output

For each test case, print the minimum cost to convert a to b or IMPOSSIBLE, if we can not convert a to b .

Sample Input	Sample Output
1 45 768 3 6 2 12 1 2 3 4 1 2 3 4 4 3 2 1	7