Easy Dijkstra Problem

Determine the shortest path between the specified vertices in the graph given in the input data.
Hint: You can use Dijkstra's algorithm.
Hint 2: if you're a lazy C++ programmer, you can use set and cin/cout (with sync_with_stdio(0)) - it should suffice.

Input

first line - one integer - number of test cases
For each test case the numbers V, K (number of vertices, number of edges) are given.
Then K lines follow, each containing the following numbers separated by a single space:
a_i, b_i, c_i
It means that the graph being described contains an edge from a_i to b_i, with a weight of c_i.
Below the graph description a line containing a pair of integers A, B is present.
The goal is to find the shortest path from vertex A to vertex B.
All numbers in the input data are integers in the range 0..10000.

Output

For each test case your program should output (in a separate line) a single number C - the length of the shortest path from vertex A to vertex B. In case there is no such path, your program should output a single word "NO" (without quotes)

Example

Input:
3
3 2
1 2 5
2 3 7
1 3
3 3
1 2 4
1 3 7
2 3 1
1 3
3 1
1 2 4
1 3

Output:
12
5
NO