

Problem A

Alien Crop Triangles

What a day! From reports received by the police department, a strange, triangular shaped object was seen flying and beaming strong light across the sky of Nlogonia for a few minutes this morning. Was it Triangolonian aliens? A secret government project? Someone playing a prank? Either way, you noticed your property now has several triangular patches that are missing its grass... time to buy some grass seeds to fix those.

Grass seeds come in bags of a certain kilogram weight. Each kg of seeds can be used to cover $30m^2$ of grass. A local supplier has given you a quote for all B seed bags it sells. Each bag has a weight of W_i kg and costs P_i Nlogonian coins.

You went ahead and measured all the N triangles missing its grass that you need to cover with seeds. As they have different shapes, you decided to measure their sides (A_i, B_i, C_i) in meters.

Given your local supplier quote, and the measurements of each triangle. Can you find the minimum number of coins you need to buy enough seeds to fix up your property?

Input

The first line of input contains two integers separated by a space B and N ($1 \leq B \leq 5$, $0 \leq N \leq 10^5$), representing, respectively, the number of bags in the local supplier quotation and the number of triangles with missing grass in your property. Each of the next B lines in the input contains two integers separated by a space W_i , and P_i , ($0 \leq W_i \leq 25$, $0 \leq P_i \leq 100$), representing, respectively the weight in kilograms, and price in Nlogonian coins of the i -th bag in the local supplier quote. Each of the next and last N lines contains three integer numbers separated by a space A_i , B_i , and C_i , representing each of the sides measured in the i -th triangle.

Output

Output a line containing a single integer number, the minimum number of coins required to buy enough seeds to fix your property. If there is no way you can fix the property print -1 .

Input example 1	Output example 1
1 1 1 100 10 10 10	200