J	Goal History	Time Limit: 1 sec

This problem is for the Brazil fans. You will be given the goal history of Brazil in world cups. The goal history will contain the years, when the world cups were held (not necessarily the actual world cup) and goal(s) scored by Brazil in these world cups. Then you will be given some queries, in each query you will be given a year when a world cup was held. You have to tell how many goal(s) was scored by Brazil in the world cup which came immediately before that world cup and in that world cup immediately after that world cup.

Input

First line of input will contain **T (1 <= T <= 10)**, the total number of test cases. Each of the test cases will contain **N (1 <= N <= 10^5)** and **Q (1 <= Q <= 10^4)** which will denote the total number of world cups and number of queries. Each of the next **N** lines will container two integers **Y (1 <= Y <= 10^18)** which will denote a year when a world cup was held and **G (1 <= G <= 20)** total number of goal(s) scored by Brazil in that world cup. Each of the next **Q** lines will container one integer which will denote a year when a world cup was held.

Output

For each of the **Q** queries of each test case you have to print total number of goal scored by Brazil in world cup held before the given year, in the given year and after the given year. If no world cup is held before or after the given year print **-1** instead. Print a blank line after each test case. See sample test case for clear understanding.

Sample I/O

Input	Output
3 3 1 1998 1 2002 2 2006 3 2002 1 1 1998 2 1998 2 2 1998 2 2002 1 1998 2002	1 2 3 -1 2 -1 -1 2 1 2 1 -1
1	-1 1 2

3 3 1998 1 2002 2 2006 3 1998 2002 2006	1 2 3 2 3 -1