

Long Jump Home

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 megabytes

Few people know, but in fact, rabbits do not jump high right after birth! Everything comes at a cost — therefore, rabbits buy their jumping abilities at the rabbit store. So, the rabbit Xeni came to this store, which is located at point 0 on the number line.

In the store, there are n abilities, the i -th of which costs c_i carrots and teaches the rabbit to jump a distance of x_i along the number line. That is, after purchasing the i -th ability, Xeni will be able to jump a distance of x_i in either direction at any moment in time.

Immediately after her purchases at the store, Xeni wants to jump to point L ($L \neq 0$), where her home is located. Help her figure out the minimum number of carrots she will need to spend to have the ability to reach point L with the jumps she has acquired, or tell her that it is impossible.

Input

Each test consists of several sets of input data. The first line contains a single integer t — the number of sets of input data ($1 \leq t \leq 1\,000$). The description of the sets of input data follows.

The first line of each set of input data contains two integers n and L — the number of abilities in the store and the coordinates of Xeni's home ($1 \leq n \leq 3\,000$; $|L| \leq 3\,000$; $L \neq 0$).

The second line of each set of input data contains n numbers x_i — the lengths of the jumps that can be acquired ($1 \leq x_i \leq 3\,000$).

The third line of each set of input data contains n numbers c_i — the costs of the abilities ($1 \leq c_i \leq 10^9$). It is guaranteed that the sum of n across all sets of input data does not exceed 3 000.

Output

For each test, output in a single line the minimum number of carrots Xeni will need to spend to jump home, or -1 if it is impossible.

Example

standard input	standard output
5	-1
3 5	7
2 4 6	8
3 1 2	9
2 555	1
5 9	
7 9	
3 12	
6 8 14	
100 3 5	
4 13	
6 10 15 13	
4 3 2 100	
4 -21	
7 7 9 4	
5 1 10 10	