

Problem C. Backpack

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 64 megabytes

Alice has a backpack of capacity m that she now wants to fill with some items!

Alice has n items, each of which has a volume v_i and a value w_i .

Can a number of items be selected from n items such that the backpack is exactly full (ie the sum of the volumes equals the backpack capacity)? If so, what is the maximum XOR sum of the values of the items in the backpack when the backpack is full?

Input

The first line contains an integer $T(T \leq 10)$ —the number of test cases.

The first line of each test case contains 2 integers $n, m(1 \leq n, m < 2^{10})$ —the number of items, the capacity of the backpack.

The next n lines , each line contains 2 integers $v_i, w_i(1 \leq v_i, w_i < 2^{10})$ — the volume and value of the item.

Output

For each test case, output a single line, if the backpack cannot be filled, just output a line of 1 otherwise output the largest XOR sum.

Example

standard input	standard output
1	14
5 4	
2 4	
1 6	
2 2	
2 12	
1 14	