Help Blue Mary Please! (Act II)

Today Mary's math homework is to solve an equation.

$$k_1 x_1^{p_1} + k_2 x_2^{p_2} + \ldots\ldots + k_n x_n^{p_n} = 0$$

She knows all ki and pi, and 1<=xi<=M. All xi must be integers. She must work out the number of different solutions of this equation this day.Can you give her a hand?

Input

There is a single integer T in the very first line of the input denoted the number of tests.T blocks follow.

For each test case:

The first line contains a single integer n(n<=6).The second line contains a single integer m(m<=150).n lines follow,each contains two space-separated integers ki and pi, i=1,2,...,n. All pi are positive.

$$\left|k_1 M^{p_1}\right| + \left|k_2 M^{p_2}\right| + \ldots\ldots + \left|k_n M^{p_n}\right| < 2^{31}$$

Output

For each test case output a single line ,which contains a single integer - the answer.You may assume this number is less than 2^31.

Example

Input:
1
3
150
1 2
-1 2
1 2

Output:
178

Warning: The time limit is very strict for this problem.