Statement Problem Fibonacci Bugs

Bug colonies have been the center of attention of scientists for a long time.
Through some technological advancements, we are now able to describe a bug colony using a number known as the *degree* of the colony.
A colony of degree 0 represents a male bug and on of degree 1 represents a female bug.
A colony of degree $i > 1$ is obtained by merging a colony of degree $i-1$ together with a colony of degree $i-2$.

As such, the first few colonies are as follows:
Colony 0: a male
Colony 1: a female
Colony 2: a male and a female
Colony 3: a male and two females

You are the owner of the biggest bug farm in the world, having at your disposal a virtually infinite amount of colonies of any degree.

Each day you recive N offers, each described by two numbers A_i and B_i, meaning that you can sell as many colonies of type A_i as you want and get B_i money for each colony of that type.
Unfortunately, the antitrust laws on the bug trading market forbid you to sell more than K bugs in a single day (selling a colony is equivalent to selling all the bugs in that colony).
Given the description of T days, if you optimally choose which offers to accept, what is the maximum amount of money you can obtain in each day?

Input

From *stdin* you will read on the first line, the number of days T.
The first line of each day contains the number of bugs N and the most bugs you can sell that day K.
The next N lines of each day contain the pair of numbers A_i and B_i.

Output

In *stdin* you will print T lines, the i^{th} one containing the answer for the i^{th} day.

Restrictions

- $1 \leq T,\ N,\ K,\ A_i \leq 10^5$
- $\sum_{i=1}^{T} N_i \leq 10^5$
- $1 \leq B_i \leq 10^9$
- For tests worth 50 points:
  $1 \leq N,\ K \leq 5.500$ and $1 \leq A_i \leq 11.000$.

Example

stdin	stdout
1 5 11 1 2 2 2 3 5 4 9 5 50	56

Explanation

It is optimal to choose the 5^{th} offer once and the 1^{st} one 3 times.