

Printer

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Judges from the SUA Programming Contest Problem Setter Team are printing problem sets for the upcoming 2024 CCPC Shandong Invitational Contest and CCPC Shandong Provincial Collegiate Programming Contest.

There are n printers in the printing shop. The i -th printer can produce one copy of the problem set every t_i seconds. However, each time after producing l_i copies from the i -th printer, it must halt for w_i seconds to avoid overheating. That is to say, the i -th printer will repeat the following working schedule: Work continuously for $t_i \times l_i$ seconds, then halt for w_i seconds.

The judges will use all printers at the same time. Calculate the minimum number of seconds needed to produce at least k copies of the problem set.

Input

There are multiple test cases. The first line of the input contains an integer T ($1 \leq T \leq 100$) indicating the number of test cases. For each test case:

The first line contains two integers n and k ($1 \leq n \leq 100$, $1 \leq k \leq 10^9$) indicating the number of printers and the number of copies needed.

For the following n lines, the i -th line contains three integers t_i , l_i , and w_i ($1 \leq t_i, l_i, w_i \leq 10^9$). Their meanings are described above.

Output

For each test case, output one line containing one integer indicating the minimum number of seconds needed.

Example

standard input	standard output
2	25
3 15	10000
3 4 5	
5 7 2	
1 2 20	
1 100	
1 1 100	

Note

For the first sample test case, in 25 seconds, the first printer can produce 6 copies, the second printer can produce 5 copies, while the third printer can produce 4 copies. So they can produce $6 + 5 + 4 = 15$ copies in total.