

7147 World Cup

In normal football games, the winner team gets 3 points, loser team gets 0 point, and if there is a draw game, both of the teams get 1 point.

In World Cup 1994, Group D there is an interest thing happened. There are 4 teams in that group, Argentina, Nigeria, Bulgaria and Greece. Greece lost all the 3 matches and scored 0. Argentina defeated Nigeria, Nigeria defeated Bulgaria and Bulgaria defeat Argentina. Since there are only 2 teams could advance to the next stage, one of the 3 teams will be eliminated. It's really a surprise that a team scored 6 will be eliminated in a 4 advance 2 group competition. That is really interesting and we'd like to dig it deeper.

In this problem, there are N teams in a group. Within a group, any two teams will play each other exactly once, so each team will have $N - 1$ matches in total.

In a match, the winner team will get A points and the loser team gets C points. If the match ends with a draw, each of the teams gets B points. When all matches finished, the teams will be ranked by their score (in case of multiple teams get the same score, they will be ordered randomly), and the top M teams from the group can advance to the next stage.

Our questions are: What is the maximum possible score that a team can earn and still not advance? (Note that there may be other teams in the same group that also earn that same score and do advance.) Similarly, what is the minimum possible score that a team can earn and still advance?

Input

The first line of the input gives the number of test cases, T . T cases follow. Each case has two lines. The first line contains two numbers, N and M . The second line contains three numbers, A , B , and C .

Output

For each test case, output one line containing 'Case # x : y z ', where x is the test case number (starting from 1) and y is maximum score that a team may be eliminated. z is the minimum score that a team may advance to the next stage.

Limits:

$$\begin{aligned} 1 &\leq T \leq 100, \\ 1 &\leq M < N \leq 10^9, \\ 0 &\leq A, B, C \leq 10^9, \end{aligned}$$

Sample Input

```
3
4 2
3 1 0
4 2
3 2 0
2 1
2 3 1
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Sample Output

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Case #1: 6 2
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Case #2: 7 3

Case #3: 3 2