UEFA Champions League is considered as the worlds greatest football club competition. The top teams from the best leagues of Europe win the right to participate in this contest. The number of teams that will participate in the Champions League is decided by the UEFA coefficient ranking system. This system takes individual club performances in Europe and performance of all the clubs of a country into account. So the number of clubs participating in the Champions league is not necessarily proportional to the number of teams competing in the domestic league.

Group A	Pld	Pts
Olympiacos	4	7
Liverpool	4	7
Monaco	4	6
Deportivo	4	2

Group B	Pld	Pts
Dynamo Kyiv	4	7
Real Madrid	4	7
Leverkusen	4	7
Roma	4	1

Group C	Pld	Pts
Juventus	4	12
Bayern	4	6
Ajax	4	3
M. Tel-Aviv	4	3

Group D	Pld	Pts
Lyon	4	10
Man. United	4	8
Fenerbahçe	4	3
Sparta	4	1

Group E	Pld	Pts
PSV	4	9
Arsenal	4	6
Panathinaikos	4	5
Rosenborg	4	1

Group F	Pld	Pts
Milan	4	9
Barcelona	4	9
Shakhtar	4	3
Celtic	4	3

Group G	Pld	Pts
Internazionale	4	10
Bremen	4	9
Valencia	4	4
Anderlecht	4	0

Group H	Pld	Pts
Chelsea	4	12
CSKA Moskva	4	4
PSG	4	4
Porto	4	2

The table to the left shows the standings of the group stages of Champions League after 4 games have been played. As we can see, there are 4 teams from the English Premier League (Liverpool, Manchester United, Arsenal and Chelsea), 4 teams from Spanish Primera Liga (Deportivo, Real Madrid, Barcelona and Valencia), 4 teams from Italian Serie A (Roma, Juventus, Inter and Milan) but only 3 teams from German Bundes Liga (Leverkusen, Bayern, Bremen). Now the numbers of teams that play in those domestic leagues are not equal (20 in Premier League, 18 in Serie A), nor do they have a uniform ranking rule. For example in Primera Liga if two teams are tied in points then the goal difference comes as a deciding factor. But for the Champions League itself, a tie in points is broken by the number of goals scored. What has remained to be uniform in the league rules is that a win would earn 3 points for a team, a draw would earn 1 and a loss would earn nothing. It is also a tradition to have the teams play each other twice on a home and away basis. But at times it may be required to have the league played in half a season, when theyd play with each other only once.

Now keeping all these anomalies in mind, we are interested to find the minimum point that a team can score and be lucky enough to qualify. You would be given the number of teams – T, the number of times they would play each other – V, and the number of teams that can qualify – Q. To avoid the differences in the tie-breaking rules we would like to see our qualifying teams get at least one point more than the ones that are left out. For example, in a league that has only 4 teams who play each other twice if we are to choose 2 qualifiers, we would say that the 2nd team would require at least 5 points to qualify. This 5-point difference is the minimum bar that a team should reach if they are to have any hope of moving on.

Input

There can be multiple test cases. The first line of input gives you the number of test cases, T ($1 \leq T \leq 100$). Each of the next T lines would give you the input for each of the test cases. N ($1 < N \leq 20$), V ($1 \leq V \leq 4$) and Q ($1 \leq Q \leq N$) are the three integers comprising one test case.

Output

For each of the test case, you need to print one line of output. The output for each test case should start with the serial number of the league, followed by the minimum possible point for a qualifying team.

Sample Input

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

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League 1: 4
League 2: 0
League 3: 7
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