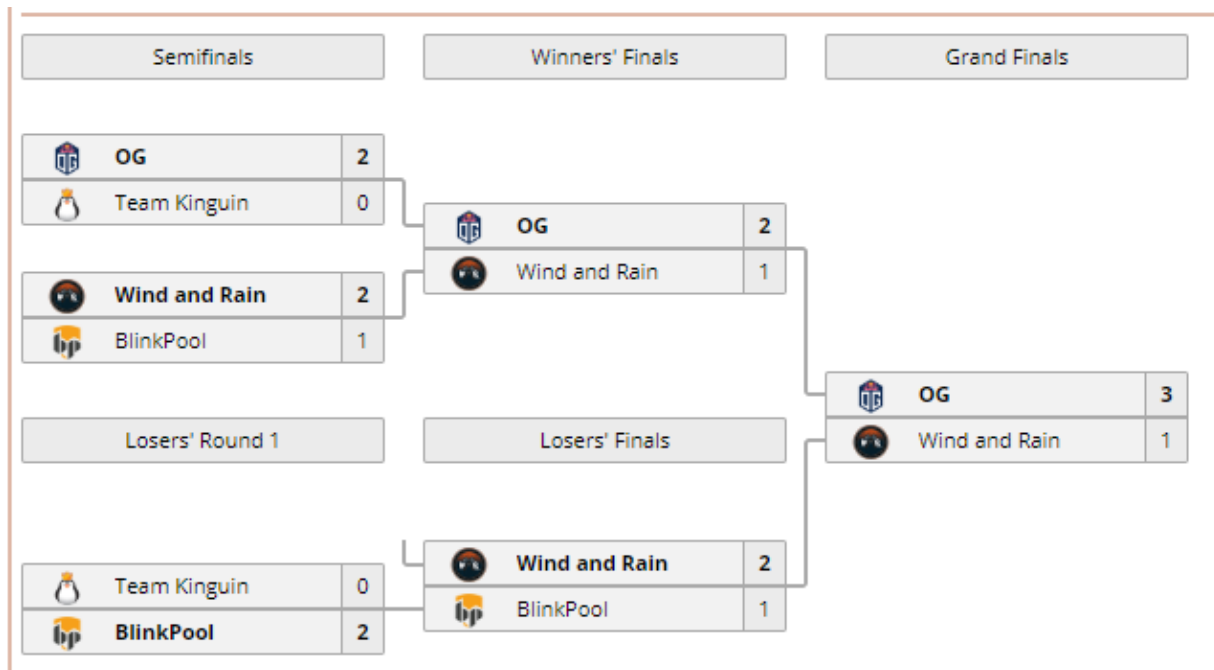


Problem B

The Nationals

Time limit: 1 second

Jeremi likes to watch tournaments. He recently just learned about double elimination system based tournaments. Jeremi likes The Nationals so much. He likes one of the teams there, so he wonders what is the number of most games can be played by that team to become a champion, and what is the number of fewest games that team can played to become the champion. The Nationals using double elimination system. Double elimination system is as follows : when you are defeated the first time, you are going to lower bracket and when you are defeated in the lower bracket, you are knocked out from the tournament. Except when you win the upper bracket and going to the Grand Finals. In Grand Finals, even if you lose for the first time, you are knocked out. So basically Grand Finals is when there are 2 teams left. Grand Finals is Best of 5, all other matches are Best of 3 format. What is Best of 5 and Best of 3? Best of 5 means the best team from 5 games win the match. So you only need to win 3 games to win the match, because if you already have won 3 games your opponent cannot defeat you, so when you are up 3-1 or 3-0 the match ended. Best of 3 you need to win 2 games. Below is an example of a double elimination system brackets with 4 teams :



So your task is to help Jeremi to find the number of least played games and most played games possible for a team in The Nationals.

Input

First line contains T, the number of test cases. ($1 \leq T \leq 5$)

Each test case will contain N , the number of teams in the Nationals ($2 \leq N \leq 32$, N will be a power of 2).

Output

For each test case, print “Case #c: X Y” without quotes, with c the number test case, X is the fewest games played to win it all, and Y is the most games played possible by a team to win it all.

Sample Input 1 2 4 8	Sample Output 1: Case #1: 7 14 Case #2: 9 20
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