UW Math Circle

Homework

1. Nala and Simba play a game on a 5×5 board. On their turn, a player can claim any open square at their territory. Once all the squares are claimed, the winner is the player whose territory has the longer border. Nala goes first. If both play their best, who will win, or will the game end in a draw?

2. The Mad Hatter and March Hare play a game that starts with 129 cups of tea arranged in a circle. On each turn, a player picks a plain cup of tea and chooses whether to add milk or lemon juice to the tea. A player loses if after his turn there are two cups of tea with the same addition right next to each other. If the Mad Hatter goes first, who loses?