
Alice and Bob

You play a game with Alice and Bob:

1. They pick one number each, with the only constraint that $A \neq B$, meaning that they are not allowed to pick the same number. (However, they can use any strategy: communicate with each other, use randomness to pick their numbers, etc.)
2. You toss a coin to choose who reveals their number, Alice or Bob.
3. After seeing the revealed number, you are to guess who has the bigger number.

Find a strategy so that you win more often than you lose.

Hint

Assume first that they pick die numbers, that is, from $\{1, 2, 3, 4, 5, 6\}$ and that your strategy is deterministic (without using randomness). For example, if the revealed number was > 3 , you always declared that it was the bigger of the two. Would your strategy always work? What if Alice and Bob always picked 4 and 5?