Risk Management

Rules: In the board game Risk, you attack with one two or three armies, which corresponds to rolling, 1,2 or 3 dice. A defender can defend with one or two armies, corresponding to rolling one or 2 dice.

When the players roll, the attacker’s highest die is compared to the defender’s highest die. If the defender and attacker each use at least two armies, then the attacker’s second highest die is compared to the defender’s second highest die. Any extra dice not involved in the comparison (for example if the attacker uses 3 and the defender uses 1, the attacker’s lower two), are disregarded.

The higher roll wins, but the defender wins in a tie.

You should try out each of the situations at least 5 times before trying to answer the question. Record what happens. Are you surprised by the results?

Questions:

1) If one army attacks one defender, what are the chances that the attacker wins?

2) If two armies attack one defender, what are the chances that the attacker wins?

3) If one army attacks two defenders, what are the chances that the attacker wins?

4) (Much harder) If three attacking armies attack two defending armies, what are the chances of a 1 win, 1 loss split.