

DTP-Math-Circle: Session 1—Counting

Sept 02 2022

5 Draw for elimination tournament

There is a inter-school cricket tournament in which 8 schools are participating. The teams are very different in their relative abilities, and the best team always defeats all the other teams, and the second best team always defeats all teams except the best. The format for the tournament is as follows: In first round, teams are paired up in some way and four matches are played. Next, the four winners are paired up and two matches are played. This leaves two teams, one of which will be the winner and the other the runner up after the final match. How many different ways are there of arranging the pairings to conduct the whole tournament? Out of these, in how many ways will the second best team emerge as the runner up?

Can you think of a way of generalizing this to a tournament with 2^m teams?