

1. The Stanley Cup is decided in a best of 7 tournament between two teams. In how many ways can your team win? Let's answer this question two ways:
 - (a) How many of the 7 games does your team need to win? How many ways can this happen?
 - (b) What if the tournament goes all 7 games? So you win the last game. How many ways can the first 6 games go down?
 - (c) What if the tournament goes just 6 games? How many ways can this happen? What about 5 games? 4 games?
 - (d) What are the two different ways to compute the number of ways your team can win? Write down an equation involving binary coefficients (that is, $\binom{n}{k}$ s). What pattern in Pascal's triangle is this an example of?
2. Generalize. What if the rules changed and you played a best of 9 tournament (5 wins required)? What if you played an n game tournament with k wins required to be named champion?