

### Hint for Problem 81

Perhaps the first thing one needs to ask is why proving that if there are  $\binom{m+n-2}{m-1}$  people in a room, then there are either at least  $m$  mutual acquaintances or at least  $n$  mutual strangers proves that  $R(m, n)$  exists. Can you see why this tells us that there is some number  $R$  of people such that if  $R$  people are in a room, then there are  $m$  mutual acquaintances or  $n$  mutual strangers? And why does that mean the Ramsey Number exists?