Problem 2

1. The set of all possible ways to arrange n males and m females around a table.
   There are $\frac{(m+n)!}{m+n} = (m+n-1)!$ elements in the set, each one with probability $\frac{1}{(m+n-1)!}$

2. Let x be the expected number of males sitted next to atleast one female.
   $x = n * P(\text{"Having at least 1 female next to you"}|\text{"Being a mal}$
   $x = n * (1 - P(\text{"Having 2 males next to you"}|\text{"Being a male"})$
   $x = n * (1 - \frac{(n-1)nCr\ 2 \cdot 2! \cdot (n+m-3)!}{(n+m-1)!})$
   $x = \frac{mn(2n+m-3)}{(n+m-1)(n+m-1)}$ <-- This last step was computed with wxmaxima

Note: I'm not sure about the 2nd result, but I made a script (`problem2.py`) to simulate this problem 10^6 times with 5 males and 5 females and it gives me about the same value ($x = 4.166254$) as substituting m and n by 5 in the formula above ($x = 4.166(6)$).