Probability Models, HW1, due January 24

1(a) Consider Orr's speciation model with $p = 0.01$ and $K = 15$. Find the speciation probability S and the expected number of incompatibilities $E[I]$.

(b) If $p = 0.01$, how large must K be for S to be at least 0.9?

2. Let K_S be the substitution at which speciation occurs. In class we saw that $P(K_S = 2) = p$ and $P(K_S = 3) = (1-p)(1-(1-p)^2)$. Find a general expression for $P(K_S = j)$.