Math 6502 : HW # 5

All book problems are from Alon & Spencer, 4th edition.

(*) = required, (**) = optional, (***) = very optional / research problem

1. (*) Consider the random graph $G \sim G(n, p)$ where $p = 2/n$.
   (a) Show that the expected number of spanning trees tends to infinity.
   (b) Show that the expected number of vertices of degree 0 tends to infinity.
   (c) Since it is impossible for a graph to have a spanning tree and a vertex of degree 0, explain what's going on. Do either of the events "having a spanning tree" or "having an isolated vertex" happen asymptotically almost surely?