Network Science
Spring 2024
Problem sheet 4

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1. Assume that $f(N)$ tends to zero as $N \to \infty$ and take $p(N) = f(N)/N$. Prove that w.h.p. $G \in G_{Np}$ has no "squares", i.e. no (i, j, k, l) with links $i-j-k-l-i$ and i, j, k, l all distinct.

2. Show that if we let $p(N) = N^{-z}$ with $z > 2$ then w.h.p. all nodes in graphs generated by the G_{Np} model will be isolated (they will not have any links).
   This is a modified version of the last question on problem sheet 3