

Probabilistic Methods

Homework #6

Due: *Thursday, November 28th*

Problem 7

Let $\omega(n)$ denote a function such that $\omega(n) \rightarrow \infty$ as $n \rightarrow \infty$ but $\omega(n) = o(\ln \ln n)$ (i.e. it tends to infinity rather slowly). Prove that if $np = \ln n + \ln \ln n - \omega(n)$ then the minimum degree of $G(n, p)$ is 1, while for $np = \ln n + \ln \ln n + \omega(n)$ the minimum degree of $G(n, p)$ is 2.

Can you guess when the minimum degree of $G(n, p)$ will reach k for a given $k \geq 3$?