T-79.5201 Discrete Structures, Autumn 2007
Tutorial 5, 7 November

There are no lectures or tutorials on the course on Wed 24 Oct (lecturer at a meeting) and Wed 31 Oct (exam week).

1. Show that for any $\epsilon > 0$, a.e. graph $G \in \mathcal{G}(n,p)$ has at least $\frac{1}{2}(p-\epsilon)n^2$ edges and at most $\frac{1}{2}(p+\epsilon)n^2$ edges.

2. Derive Theorem 5.1 of the lecture notes (given any fixed graph H, a.e. $G \in \mathcal{G}(n,p)$ for $0 < p < 1$ contains an induced copy of H) from Lemma 5.2 of the notes (for any fixed $k, l \in \mathbf{N}$, a.e. $G \in \mathcal{G}(n,p)$ for $0 < p < 1$ has property Q_{kl}).

3. Show that a.e. graph $G \in \mathcal{G}(n, \frac{1}{2})$ has at least $n^{1/3}$ vertices of degree precisely $\lfloor n/2 \rfloor$.