Math 527 - Homotopy Theory
Spring 2013
Homework 8, Lecture 3/4

Problem 1. Let X be an n-connected space, for some $n \geq 0$. Show that X admits a CW approximation with a single 0-cell and cells in dimensions greater than n.

Note: Feel free to refer to the lecture about CW approximation on 3/1.

Problem 2. (Hatcher § 4.1 Exercise 17) Let X and Y be CW-complexes where X is m-connected and Y is n-connected, for some $m, n \geq 0$.

a. Show that the inclusion $X \vee Y \to X \times Y$ is $(m+n+1)$-connected.

b. Show that the smash product $X \wedge Y$ is $(m+n+1)$-connected.

Remark. With a bit more work, one can weaken the assumption to X and Y being well-pointed spaces.