Math 151b, Winter 2011

1. If X is an n-connected CW complex and Y is an m-connected CW complex, prove that $X * Y$ is $(n + m + 1)$-connected. Deduce that if G is homotopic to a CW complex, then EG is contractible.

2. For the principal S^1 bundle $S^{2n+1} \to \mathbf{CP}^n$ write down a collection of open sets U_i over which the bundle is trivial, and write down explicit trivializations over the U_i and transition functions on the intersections $U_i \cap U_j$. Verify that the transition functions satisfy the cocycle condition.