# Week 7 (due Nov. 20)

1. Problem 14.3 in Srednicki (10 pts).

2. Problem 14.5 in Srednicki (20 pts). The theory here is considered in dimension $D = 4$.

3. Problem 14.6 in Srednicki (20 pts).

4. (20 pts). Consider $\phi^3$ theory in $D = 5$. This theory is super-renormalizable (although sick nonperturbatively), which means that only a finite number of Feynman diagrams is superficially divergent. Find all such diagrams. What kind of counterterms does one need to cancel divergences? Is $Z_\phi$ infinite in this theory? Is $Z_m$ infinite?