1. Problem 1 of chapter 11 of Srednicki’s text.

2. Problem 3 of chapter 11 of Srednicki’s text. In part (b), argue that $A$ and $B$ are dimensionless, and that therefore they cannot depend on $k'_1$ or $k'_2$. In part (d), when you do the contractions you will find inner products of various pairs of four-vectors on the left-hand side of your equations. Express these all in terms of $k^2$.

3. Problem 4 of chapter 11 of Srednicki’s text. Do this problem using the Feynman rules directly from the lagrangian! You should find that the scattering amplitude $AA \to AA$ vanishes at tree level (some others vanish as well). Do these amplitudes also vanish beyond tree level? Can you draw one-loop diagrams that contribute? At what order in $g$ does such diagrams appear?