Problem C8.1 Determine the leading order (= ideal gas) pressure for a SU(N) gauge theory with N_f massless Dirac fermions in the fundamental representation.

Problem H8.1 Compute the $\mathcal{O}(g^2)$ corrections to H8.1 from

(a) the 3-gluon interaction,

(b) the 4-gluon interaction.

Make use of the order g^2 contributions to the gluon propagator that were computed in the lecture.
Hint: The diagrams for the pressure can be obtained by closing the external gluon line in the diagrams for the propagator, you still have to work out the combinatorical factors.
You should arrive at the pressure contributions

$$P_3 = -\frac{g^2 N(N^2-1)T^4}{48}, \qquad P_4 = \frac{g^2 N(N^2-1)T^4}{64}.$$