Cid Araujo's questions

1) The effective Nonlinear susceptibility of an anhamonic oscillator should be:
   - For 2nd harmonic: $\chi_{eff}^{(2)}(\omega) = L^3 \chi^{(2)}(2\omega)$

   - For self-focusing: $\chi_{eff}^{(3)}(\omega) = L^2 |L|^2 \chi^{(3)}(\omega)$

where L is the local field factor.

2) Consider a self-defocusing medium and show that a strong beam propagating partially overlapping a weak beam (WB) may induce self-focusing of the WB.

3) Show that a beam propagating in a $\chi(2)$ medium may induce four-wave mixing with an effective susceptibility:

$$\chi_{eff}^{(3)} = \left| \chi^{(2)} \right|^2$$