Homework #5

1. Calculate
   (a) the peak power
   (b) the average power
   for the formation of a fundamental soliton in an optical fiber at $\lambda = 1.55 \, \mu m$ with $A_{\text{eff}} = 100 \, \mu m^2$
   pulse width (FWHM) $\tau_0 = 2.5$ ps, chromatic dispersion $\sigma = 3$ ps/km-nm, bit-rate $B = 40$-Gbit/s.

2. Calculate the critical pump power for stimulated Raman scattering at which Stokes power equals to the pump power at $\lambda = 1.55 \, \mu m$ with $A_{\text{eff}} = 100 \, \mu m^2$, $L_{\text{eff}} = 15$ km, $g_R = 0.6 \times 10^{-11}$ cm/W.