

1. Show that in a resonant LCR series circuit the maximum potential across the condenser occurs at a frequency  $\omega = \omega_0(1 - 1/2(Q_0)^2)^{1/2}$ , where  $(\omega_0)^2 = (LC)^{-1}$  and  $Q_0 = \omega_0 L/R$ .

I have been able to deduce the following (correct) facts that may help in a solution to this problem:

- (a) The value of the displacement at resonance is given by:  $A_{max} = \frac{F_0}{\omega' r}$ , where  $\omega'^2 = \frac{s}{m} - \frac{r^2}{4m^2}$ .
- (b) But I still can't solve the required problem...