A series RLC circuit is driven by an external AC source with $V_{RMS} = 120\,volt$ and variable frequency f. Use $L = 10\,mH,\ C = 0.7\,mF,\ R = 0.1\,\Omega$.

1. Find the resonant frequency f_0 (in Hz)
2. Plot I_{RMS} as a function of f. (Select the horizontal scale $f_0 \pm 40\,Hz$ for a good plot).
3. plot $V_C - V_L$ and compare with V_R.