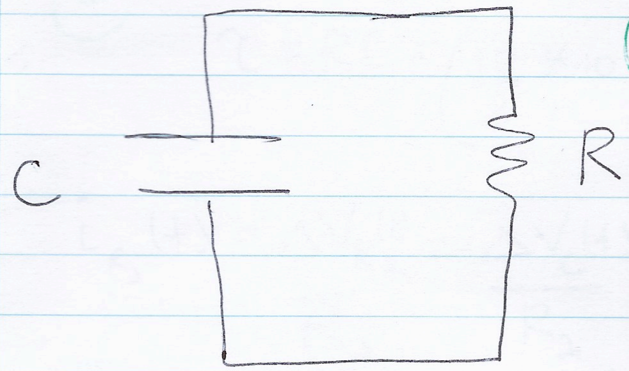
R_2 and R_4 are in parallel so to calculate ΔV_{R_2} I can replaced the circuit with this:



1

and $\Delta V_{R_2} = \Delta V_R = \Delta V_C$

where $\frac{1}{R} = \frac{1}{R_2} + \frac{1}{R_4} \rightarrow R = \frac{R_2 R_4}{R_2 + R_4} = \frac{(5\text{ k}\Omega)(10\text{ k}\Omega)}{5\text{ k}\Omega + 10\text{ k}\Omega}$

1

$= \frac{10}{3}\text{ k}\Omega$

Now, the capacitor originally had stored $U_0 = 9.6$ nJ of stored energy

so $U_0 = \frac{1}{2}\frac{q_0^2}{C} = \frac{1}{2} C \,\Delta V_C(t_0)^2$ 1

so $\Delta V_C(t_0) = \sqrt{\frac{2U_0}{C}}$ $\cancel{= \sqrt{\frac{(2)(9.6\times10^{-9}\text{ J})}{(3.6\times10^{-11}\text{ F})}} = 20\text{ V}}$

1 $\Delta V_C(t_0) = \sqrt{\frac{(2)(9.6\times10^{-9}\text{ J})}{(4.8\times10^{-11}\text{ F})}} = \sqrt{400}\text{ V} = \cancel{20.0\text{ V}}$ 20.0 V

1 $\Delta V_C(t_0) = \sqrt{\frac{(2)(9.6\times10^{-9}\text{ J})}{(3.6\times10^{-11}\text{ F})}} = \frac{40}{\sqrt{3}}\text{ V} = 23.1\text{ V}$