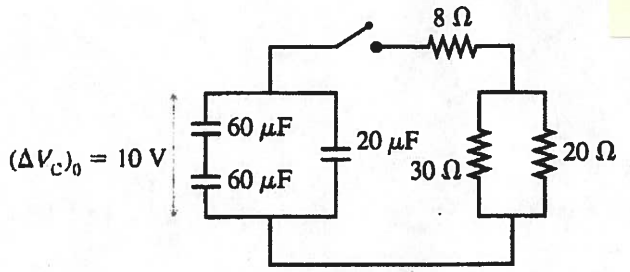
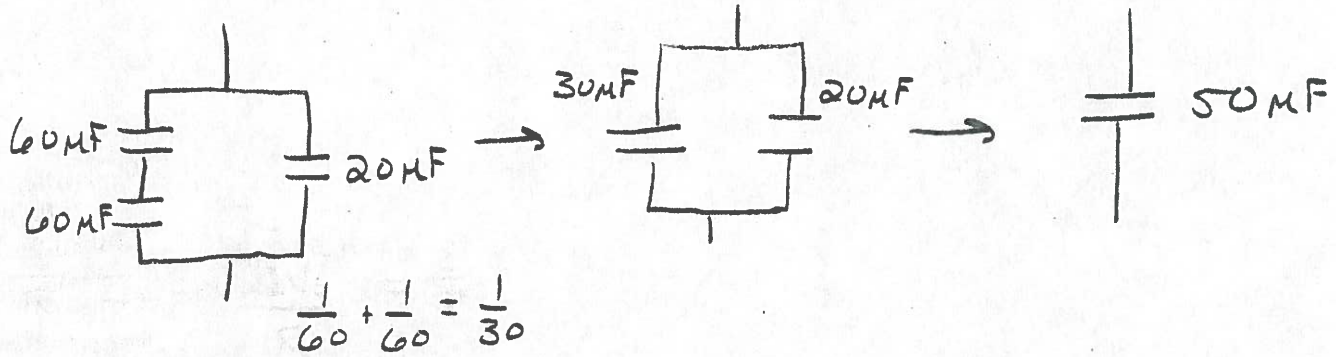
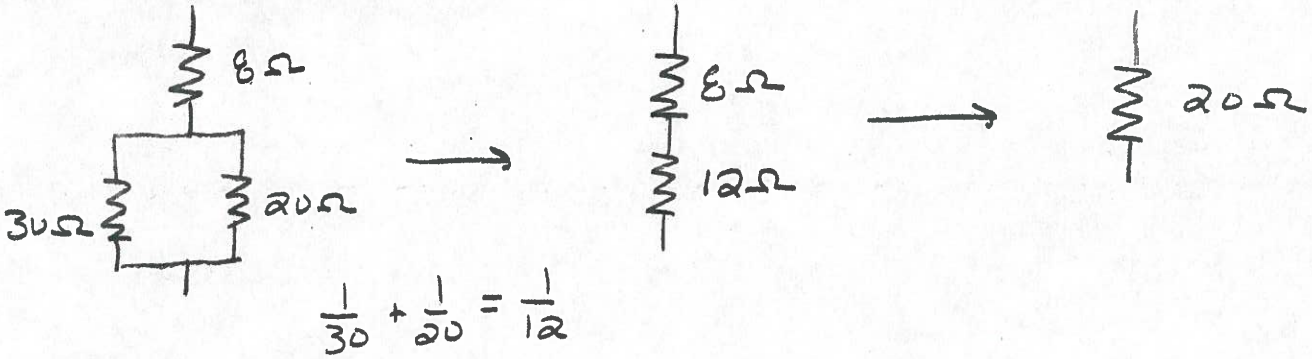
WB 28-13
1



To find time constant, combine capacitors and resistors:

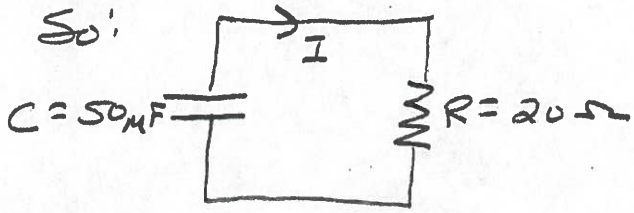


$\frac{1}{60} + \frac{1}{60} = \frac{1}{30}$



$\frac{1}{30} + \frac{1}{20} = \frac{1}{12}$

So:



$\tau = RC = 0.001\ s$

and $I = I_0 e^{-t/\tau}$

$\frac{I}{I_0} = \frac{1}{2} = e^{-t/\tau}$

$\ln(1/2) = -\frac{t}{\tau} \Rightarrow t = -\tau \ln(1/2)$

$= \underline{6.93 \times 10^{-4}\ s}$