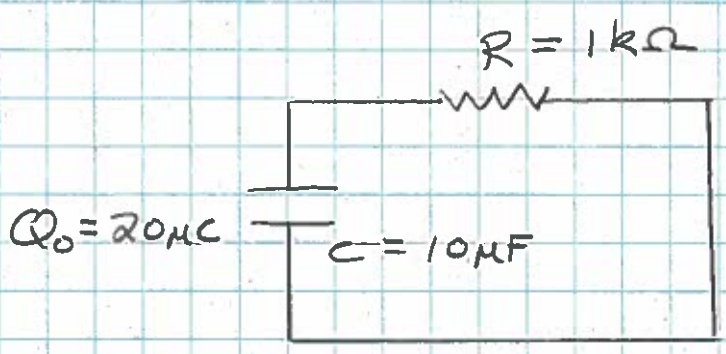

$\tau = RC$

$= 0.01\,s$

$Q(t) = Q_0 e^{-t/\tau}$ where $Q_0 = 20\mu C$

$Q(t) = 10\mu C = Q_0 e^{-t/\tau}$

$\frac{10\mu C}{20\mu C} = \frac{1}{2} = e^{-t/\tau}$

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

and, $t = -\tau \ln(1/2) = \underline{0.00693\ s}$