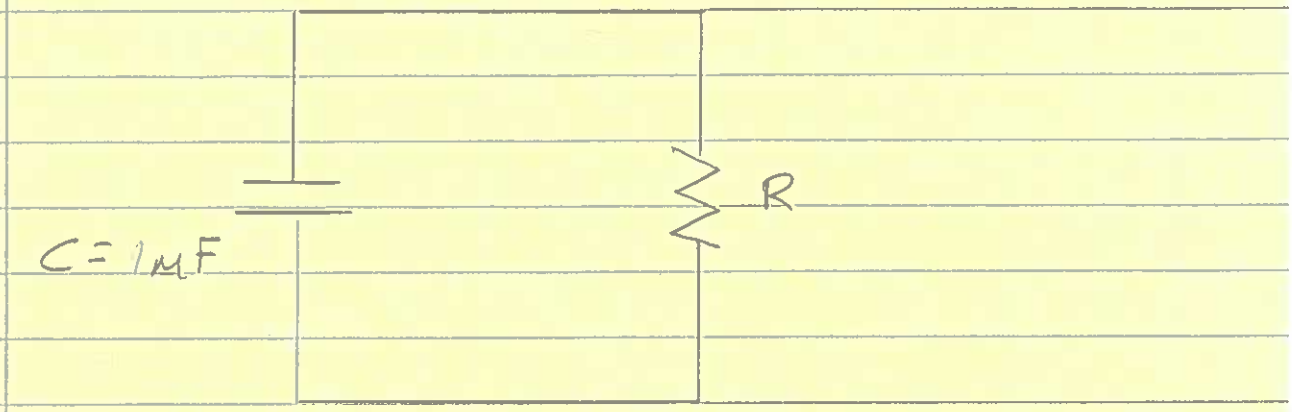

At $t = 2ms$, $\frac{Q}{Q_0} = 0.1$

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

So: $$\frac{Q}{Q_0} = .1 = e^{-t/\tau}$$

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

and

$$\tau = \frac{-t}{\ln(.1)} = 0.868\ ms$$
$$= 8.68 \times 10^{-4}\ s$$

So:

$$\tau = RC \Rightarrow R = \frac{\tau}{C} = \underline{868.6\ \Omega}$$