

An un-charged  $5.0 \mu\text{F}$  capacitor and a  $1.0 \text{ M}\Omega$  resistor are connected in series to a battery. At what time, after the battery is connected, is the potential difference across the capacitor 60% of the value of the potential difference across the battery?

$$V(t) = \mathcal{E} (1 - e^{-t/RC})$$

$$0.6 \mathcal{E} = \mathcal{E} (1 - e^{-t/RC})$$

$$0.6 = 1 - e^{-t/RC}$$

$$\ln 0.4 = -\frac{t}{RC}$$

$$t = -RC \ln 0.4$$

$$= 4.6 \text{ s}$$

04 Sep	11 Sep	18 Sep	25 Sep	2 Oct	9 Oct	23 Oct	30 Oct	6 Nov	13 Nov	20 Nov	27 Nov	4 Dec	11 Dec	18 Dec
Solutions of the quizzes can be found on the webpage: <a href="http://faculty.kfupm.edu.sa/phys/aljalal/phys102.htm">http://faculty.kfupm.edu.sa/phys/aljalal/phys102.htm</a>														
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