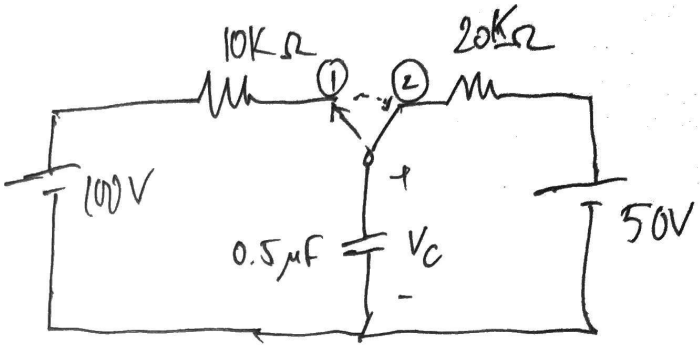
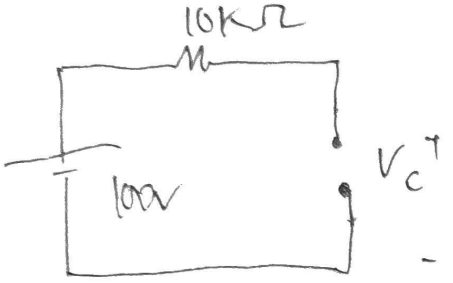
Nhat Ho
105355311

The Switch has been in position ① for a long time, we have a circuit which the capacitor is open circuit to DC, so.





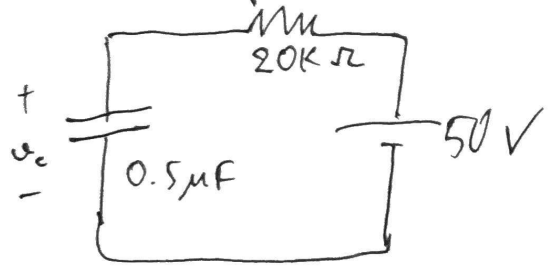
→ $V_c(0^-) = 100V$

When Switch move to position (2).

at $t \to 0^+$, we have $V_c(0^-) = V_c(0^+) = 100\,(V)$

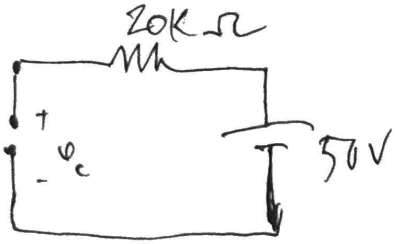
Because the capacitor will not allow instantaneous change in voltage. And we have:

$$T = RC = 20\times10^3 \times 0.5\times10^{-6} = 0.01\,(sec)$$



Since the capacitor acts like an open circuit to DC for a long time

⇒



⇒ $\boxed{v_c = 50\,V}$