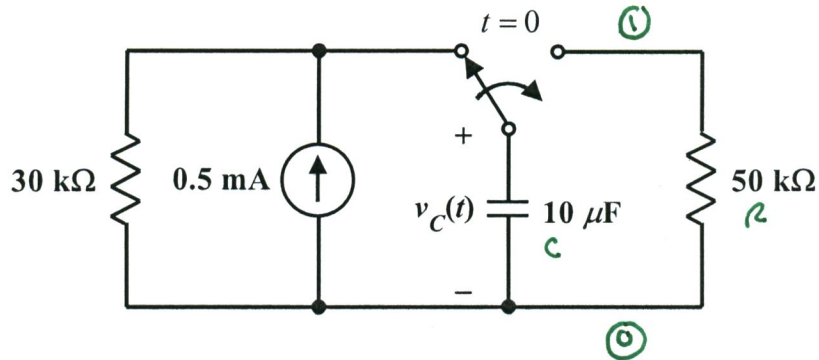


EE 2240  
**Problem #10**

The switch has been in the position shown for a *very* long time.



a. Find  $v_C(t)$  for  $t \geq 0$ .

$$v_C(0) = (30\text{k}\Omega)(0.5\text{mA}) = 15\text{V}$$

$$\tau = (50\text{k}\Omega)(10\mu\text{F}) = 0.5\text{s}$$

$$v_C(t) = v_C(0)e^{-t/\tau}$$

$$= 15e^{-2t}\text{V}, t \geq 0$$

b. Use PSpice and PROBE to plot the energy stored in the capacitor for  $0 \leq t \leq 3\text{s}$ .

Problem #10

C 1 0 10u IC = 15

R 1 0 50k

.TRAN 5m 2.5 0 1m UIC

.PROBE  $\uparrow$  5τ = 2.5s

.END

See the next page for the output.

Problem #10

