



When the switch is at a, the capacitor charges to

$$\Delta V_0 = \varepsilon = 9V$$

a.) switch at b at $t=0$:

$$Q_0 = C \Delta V_0 = 3.6 \times 10^{-5} C$$

$$I_0 = \frac{\Delta V_0}{R} = 0.36 A$$

b & c.) Discharging RC circuit:

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

$$I = I_0 e^{-t/\tau}$$

$$\text{where } \tau = RC = 1 \times 10^{-4} s \\ = 100 \mu s$$

So:

$$Q(t=50 \mu s) = Q_0 e^{-t/\tau} = 2.184 \times 10^{-5} C$$

$$I(t=50 \mu s) = I_0 e^{-t/\tau} = 0.2184 A$$

$$Q(t=200 \mu s) = 4.872 \times 10^{-6} C$$

$$I(t=200 \mu s) = 0.04872 A$$