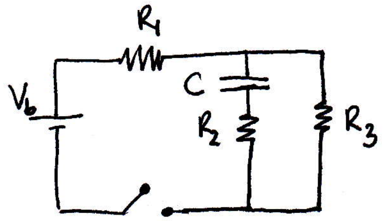


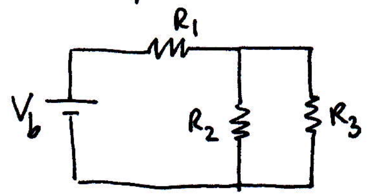
At first C is not charged.

* Close the switch ↔ turn on the supply and we have a complete circuit.

- Right after the switch is closed:

  C = wire

  ⇒ equivalent circuit:



(a)

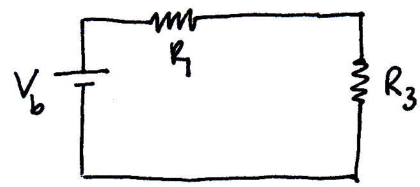
$((R_2 // R_3) + R_1)$

↑ "in series with"

- A long time after the switch is closed:

  C = break in circuit

  ⇒ equivalent circuit:

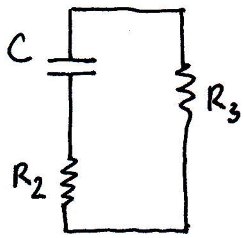


(b)

$(R_1 + R_3)$

Now C is fully charged. Open the switch:

equivalent circuit is:



(c)

$(R_2 + R_3)$

Follow the derivation on page 1,

we have

$$I = \frac{Q_0}{(R_2 + R_3)C} e^{-t/((R_2+R_3)C)}$$

$$V_c = \frac{Q_0}{C} e^{-t/((R_2+R_3)C)}$$

where $Q_0 = V_3 C = I R_3 C = \left(\frac{V_b}{R_1+R_3}\right) R_3 C$

↑ current through circuit (b).