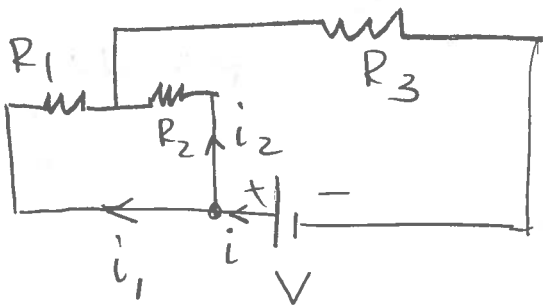


Answers Test 2 2014

1.

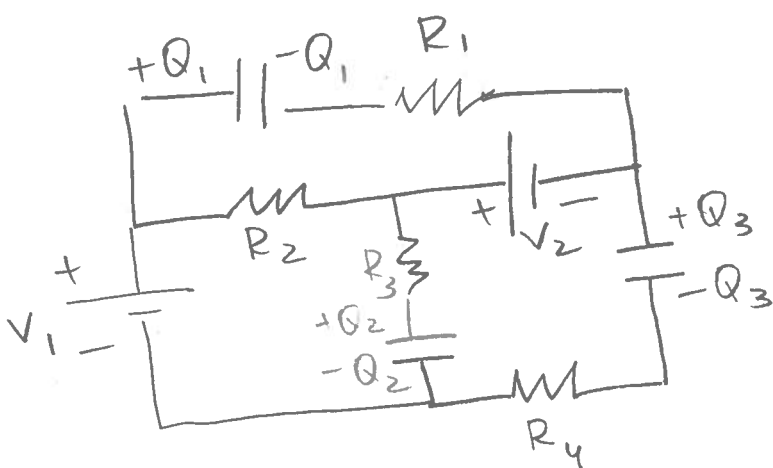


$$i_2 = \frac{1}{3}$$

$$i_1 = \frac{2}{3}$$

$$i = 1$$

2. all currents = 0.



$$Q_1 = 48 \cdot 10^{-6} \text{ C}$$

$$Q_2 = 24 \cdot 10^{-6} \text{ C}$$

$$Q_3 = -36 \cdot 10^{-6} \text{ C}$$

$$3. \rightarrow V(A+D) - V(0) = -\frac{Q}{2\epsilon_0} \left(\frac{4A^2}{a} - \frac{A^2}{2} - A^2 \ln 2 \right)$$

$$\rightarrow V(A+D) - V(0) = -\frac{3A^2}{2\epsilon_0} \left(\frac{3}{2} - \ln 2 \right)$$

$$4. \text{ Connected at B: } i = \frac{8\pi A V}{9\epsilon_0}$$

$$\text{at G: } i = \frac{32\pi A V}{59\epsilon_0}$$