598P39

$C = 850\times10^{-6}\,F$

$V = 280\,V$

A) Energy

$$E = \frac{1}{2}CV^2$$

$$= \frac{1}{2}(850\times10^{-6})(280V)^2$$

$$= 33.32\,J$$

$t = 3.9\times10^{-3}\,s$

$$P = \frac{W}{t} = \frac{\Delta E}{t} = \frac{33.32\,J}{3.9\times10^{-3}\,s}$$

$$= 8544\,W$$

29

$q = 1.5\times10^{-8}\,C$

$V_1 = 190\,V$

$V_2 = 75\,V$

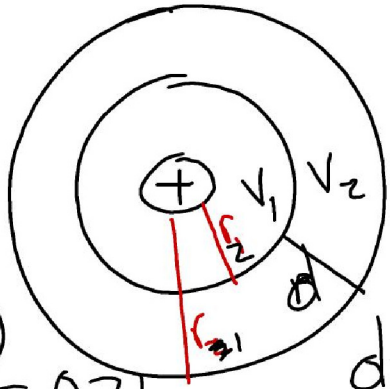
$r = ?$

$$V = \frac{kq}{r}$$

$$r = \frac{kq}{V}$$

$$r_1 = \frac{(9\times10^9)(1.5\times10^{-8})}{190} = 0.71$$

$$r_2 = \frac{(9\times10^9)(1.5\times10^{-8})}{75} = 1.8$$



$$d = r_2 - r_1$$

$$= 1.09\,m$$

Resistors

Series

$R_{Net} = R_1 + R_2 + R_3 + \ldots$

$R_{Net} = \Sigma R$

Voltage "Drops" accross a resistor, according to $V = IR$

Current is the same in every resistor

Parallel

$\frac{1}{R_{Net}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \ldots$

$\frac{1}{R_{Net}} = \Sigma \frac{1}{R_i}$

Voltage is the same

To get current, use $V = IR$

Electro Motive Force (EMF) ($\mathcal{E}$)

Treat this like V

$\mathcal{E} = IR$

Ammeter – measures current

Ideally: low R_i in Series

Voltmeter – measures potential or EMF

Ideally: High R_i in Parallel

Ohmmeter – Measures Resistance

High R_i in Parallel