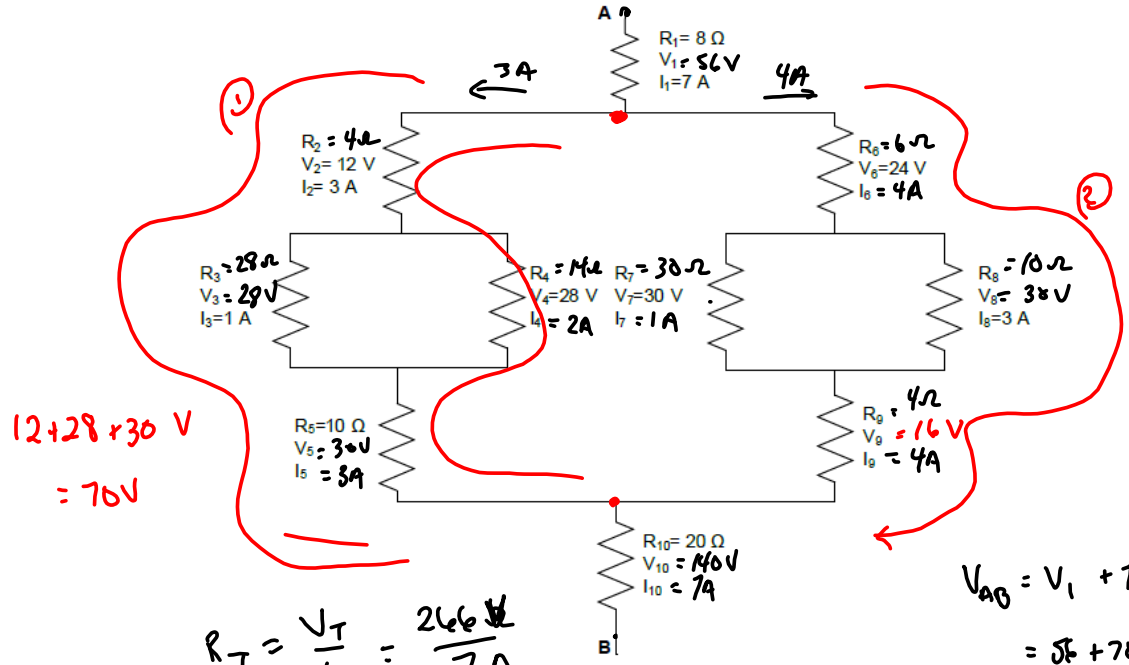
Determine the unknowns in the circuit below.
Also find V_{AB}, the potential difference between points **A** and **B**



Electrical Power

$W = q\Delta V$ ← potential difference

$\frac{\Delta PE}{q} = \Delta V$

$P = \frac{W}{t} = \frac{qV}{t}$ $\quad \frac{q}{t} = I$

$= VI$ $\quad V = IR$

$= I^2R$ $\quad I = \frac{V}{R}$

$= \frac{V^2}{R}$

$W = Pt = VIt$

$P = 180W$

$t = 30 days = 30 \times 86400s$

$W = 180W \cdot 30 \cdot 86400s$

$= 466560000J$

$= 466.56 MJ$

NB Power $0.138/kWh

1 kWh

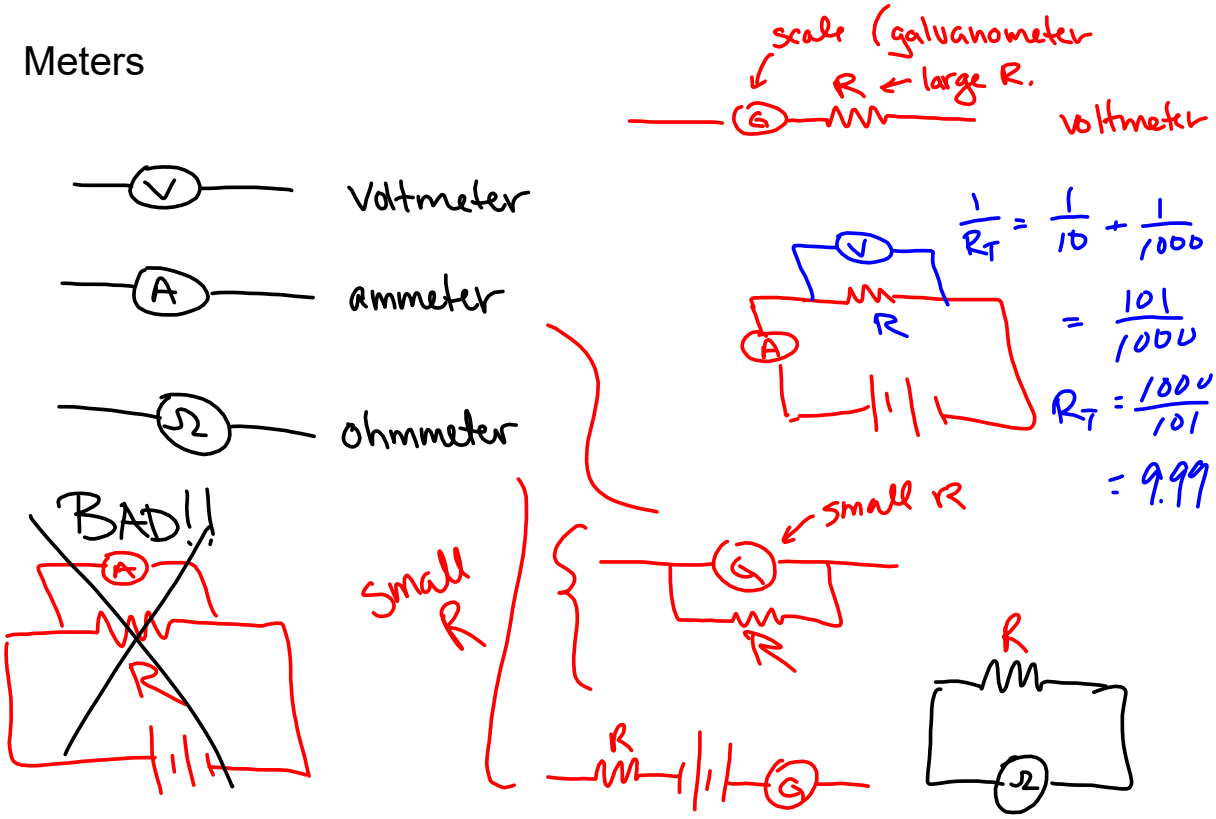
$= 1000W \cdot 3600s$

$= 3.6MJ$

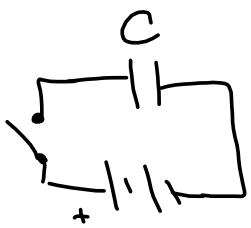
$Cost = \frac{466.56}{3.6} \times \$0.138$

$= \$17.88$

Meters

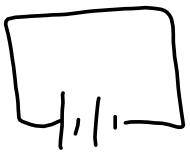

scale (galvanometer
R ← large R.
G
voltmeter
V
Voltmeter
A
ammeter
Ω
ohmmeter
$\frac{1}{R_T} = \frac{1}{10} + \frac{1}{1000}$
$= \frac{101}{1000}$
$R_T = \frac{1000}{101}$
$= 9.99$
V
R
A
BAD!!
A
R
small R
small R
G
R
G
R
Ω

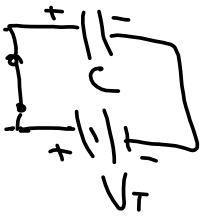
Capacitors in Circuits



uncharged capacitor, $r \approx$ ☺

behaves like a short circuit



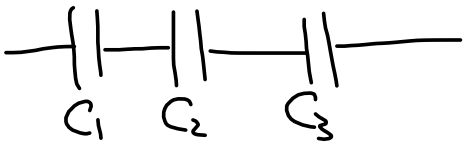


$I = ☺$

$V_c = V_T$

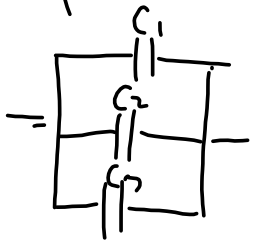
when fully charged

Capacitors in series



$$\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}$$

in parallel



$$C_T = C_1 + C_2 + C_3$$

Determine the unknowns in the circuit below.
Also find $\mathbf{V_{AB}}$, the potential difference between points **A** and **B**