10.

$t = 15 \text{ min} = 900 \text{ s}$
$I = 1.2 \text{ A}$
$V = 22 \text{ V}$

a) $R = \frac{V}{I}$

$R = \frac{22}{1.2}$

$R = 18.3\overline{3} \ \Omega$

b) $Q = (I)(t)$

$Q = 1.2 \ (900)$

$Q = 1080 \text{ C}$

11.

$V = 110 \text{ V}$
$I = 3.9 \text{ A}$
$t = 64 \text{ h}$
$\text{cost} = \$0.13 / \text{kwh}$

a) $P = I \cdot V$

$P = 3.9 \ (110)$

$P = 429 \text{ W}$

$P = 0.429 \text{ kw}$

b) $E = P \cdot t$

$E = 0.429 \ (64)$

$E = 27.46 \text{ kWh}$

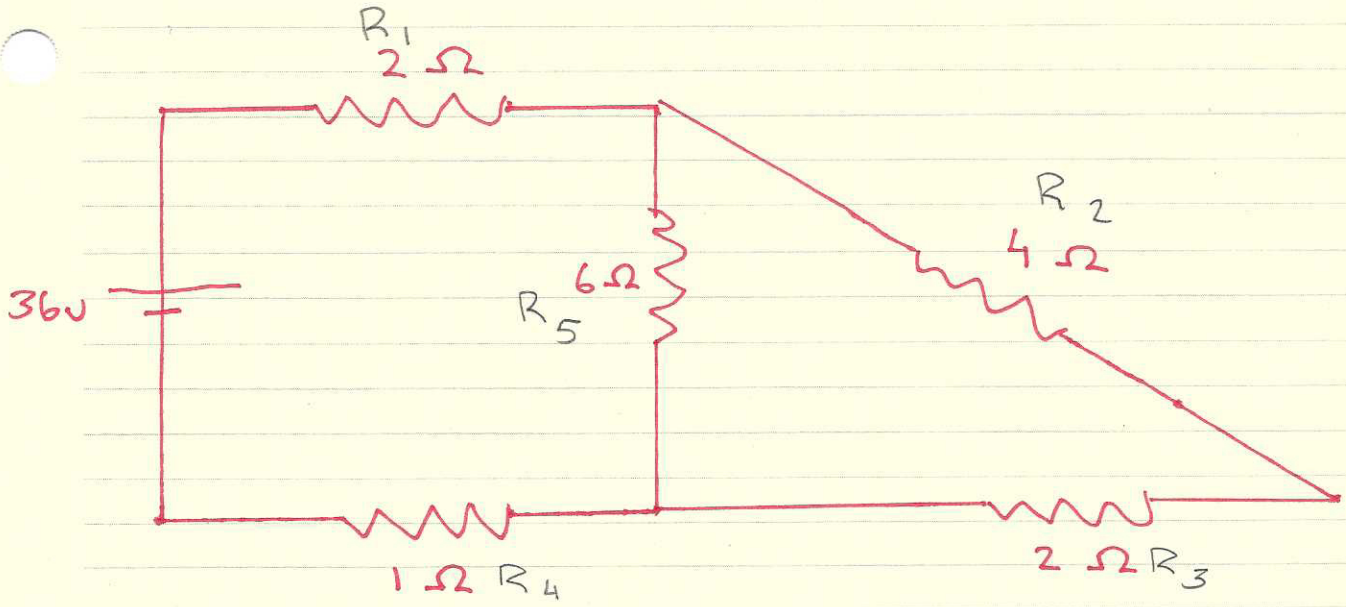
c) $\text{cost} = \$ \times E$

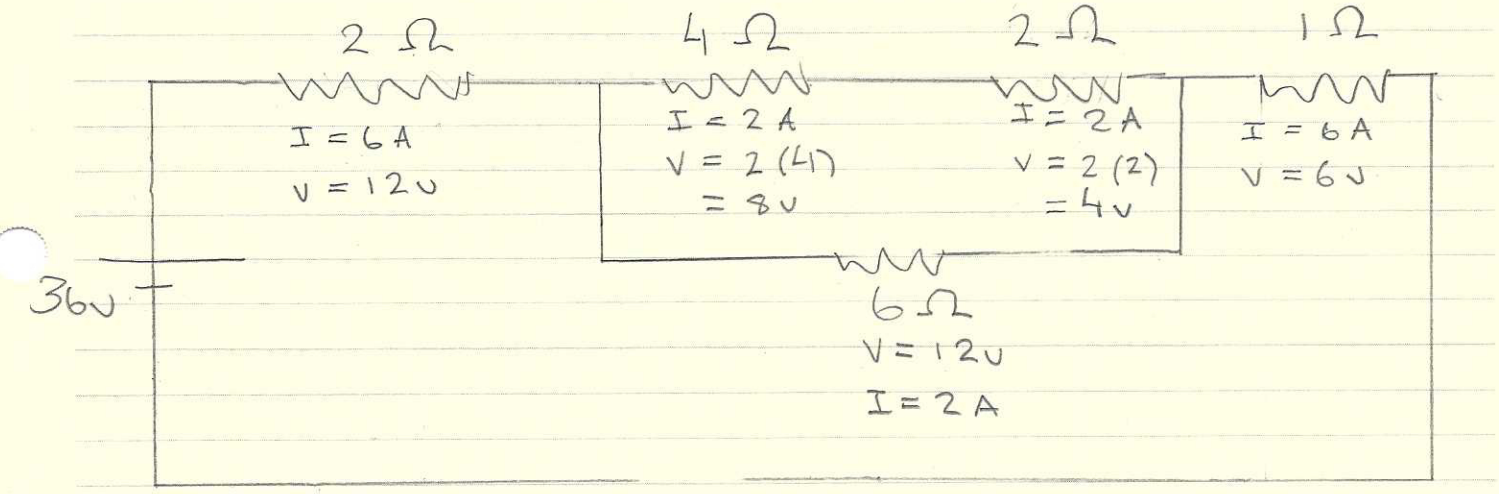
$\text{cost} = 0.13 \times 27.46$

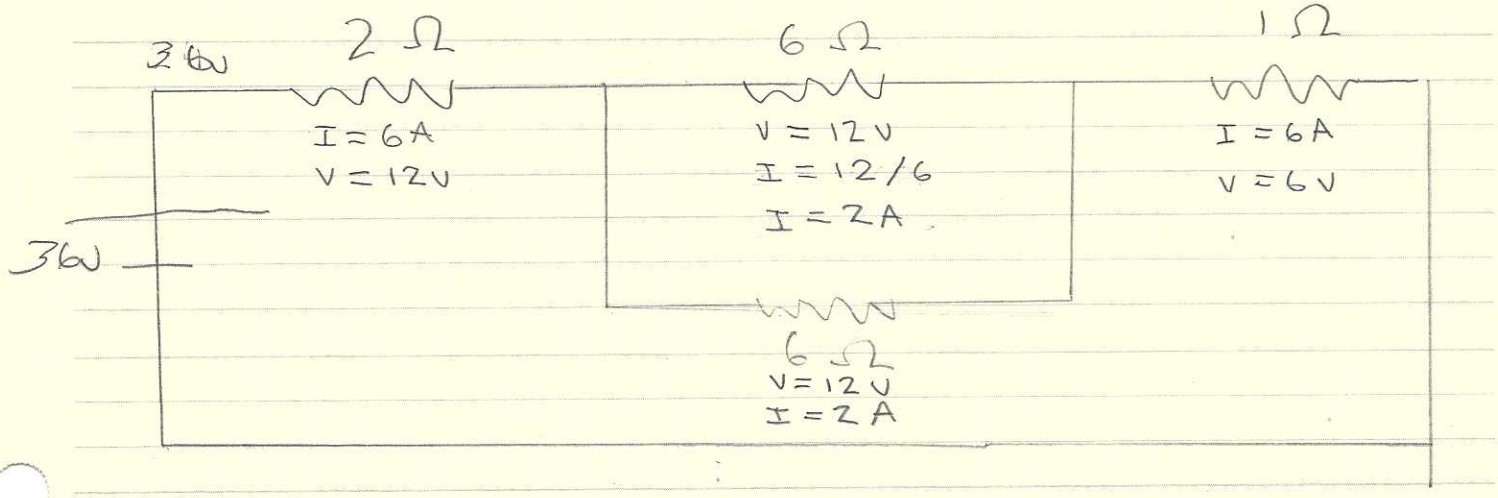
$\text{cost} = \$3.57$

Over

12.







Over

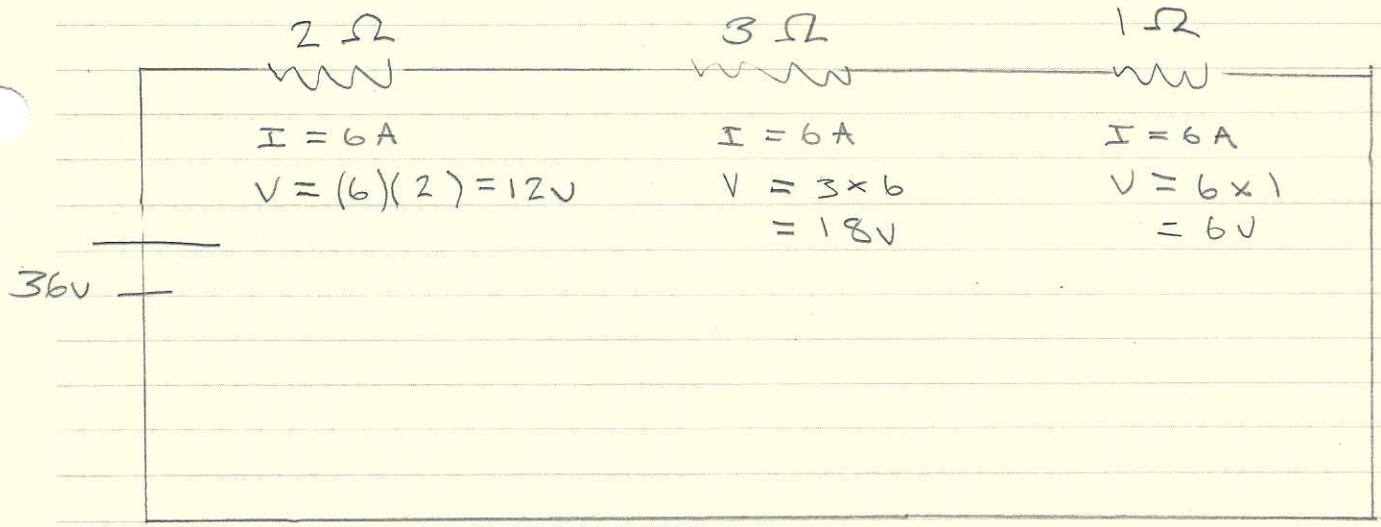
$$\frac{1}{R_{235}} = \frac{1}{R_{23}} + \frac{1}{R_5}$$

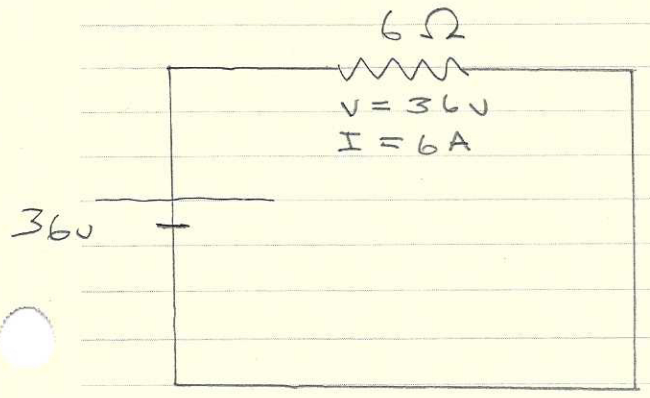
$$= \frac{1}{6} + \frac{1}{6}$$

$$= \frac{2}{6}$$

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

$$R_{235} = 3\,\Omega$$





$$I = \frac{V}{R}$$

$$I = \frac{36}{6}$$

$$I = 6\,A$$

Over

when in Series resistors add up sequencially

($R_T = R_1 + R_2 + R_3$)

when in parrallel:

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

Current in Series is constant

I at R_1 = I at R_2

in parrallel

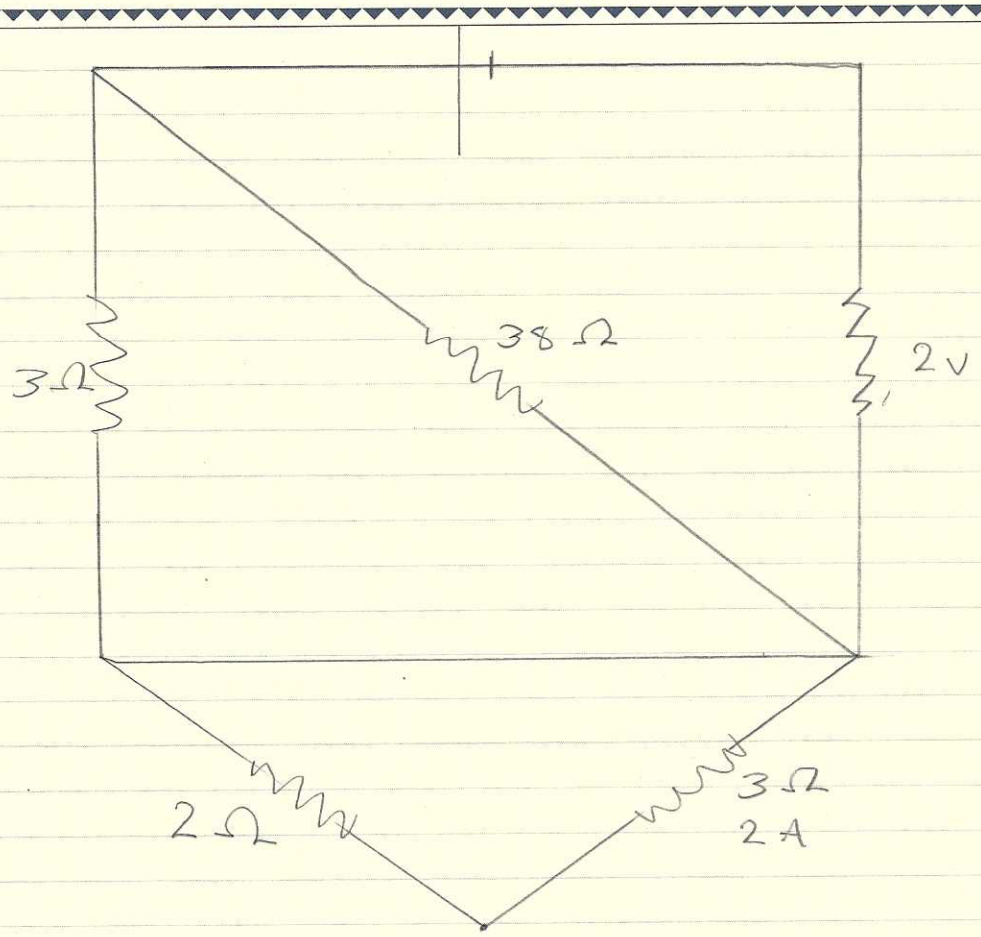
$R_T = I_1 + I_2 + I_3$

Voltage in parrallell is constant

Voltage in Series adds up

$V_T = V_1 + V_2 + V_3$

Over



0.83Ω

2V
I = 2 + 0.42
= 2.42A
R = 2/2.42
= 0.83Ω

3Ω
2A
V = 3×2
= 6V

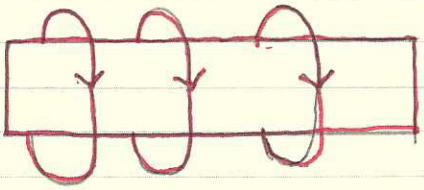
2Ω
2A
V = 2×2
= 4V

3Ω
2A
V = 3×2
= 6V

38Ω
V = 6 + 41 + 6
= 16V
I = 16/38
≐ 0.42A

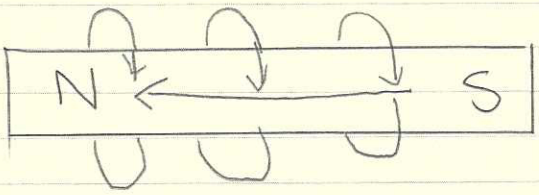
Over

14.

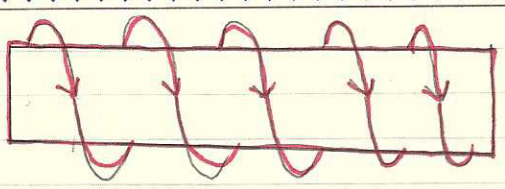


Using the left hand rule we can see that the current is going from right to left.

using left hand rule #2 we can align our fingers with the coil to see that the North is on the left

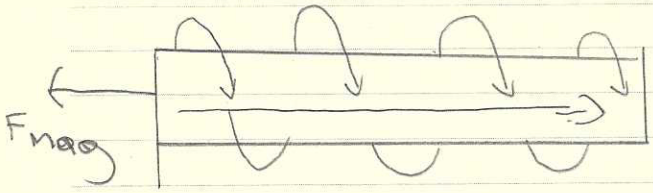


Over

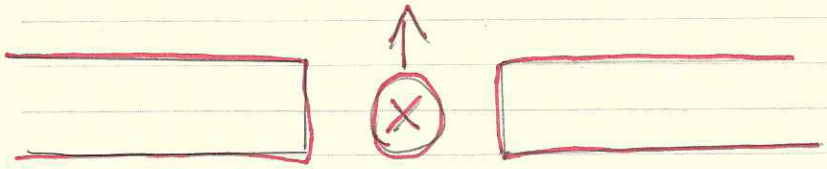


the current flows from left to right

Using left hand rule #2 we can see that the north pole is on the left side

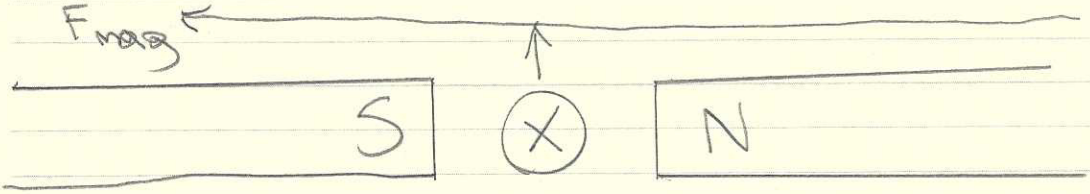


Over



because of the X we can see that the current is moving into the page

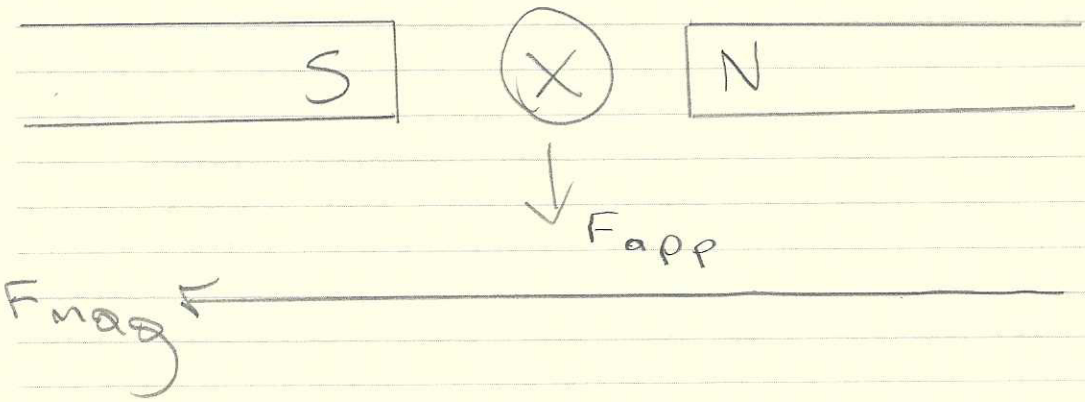
using Fleming's left hand rule we can see that the magnetic field goes from right to left. this means that the north pole is on the right. (magnets go from N to S.)



Over

because of the x we can see that current is flowing into the page.

Using Fleming's left hand rule, we can see that the field is going from left to right.



Over