2012/2/15

Ex 5.11

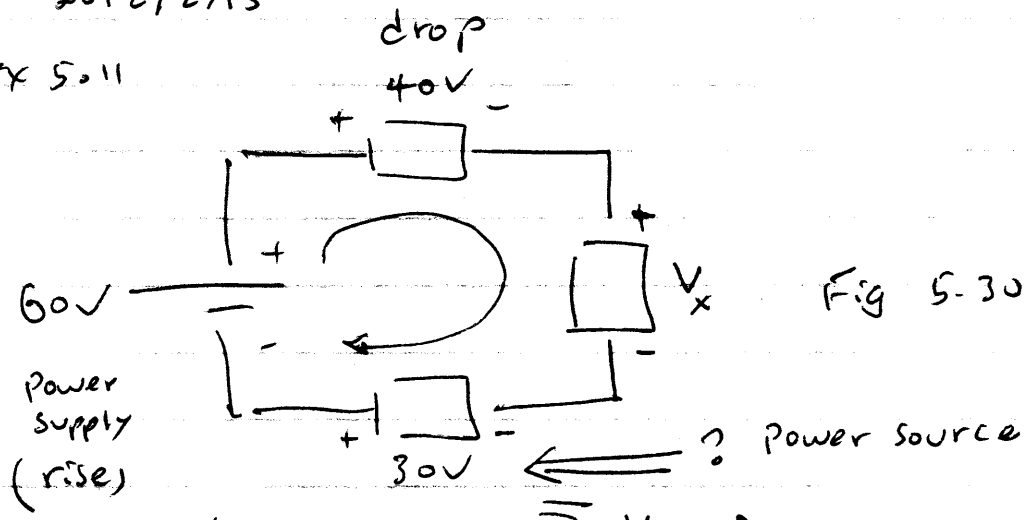


Fig 5.30

KVL $\quad \sum V = 0$

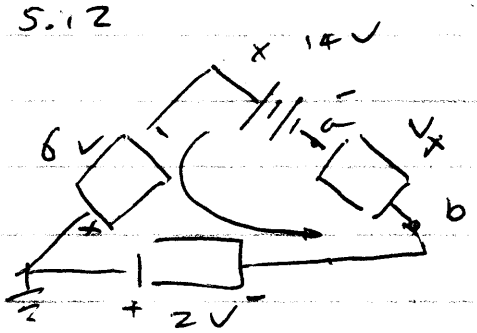
rises = Drops

$60V + 30V = 40V + V_x$

$90V = 40V + V_x$

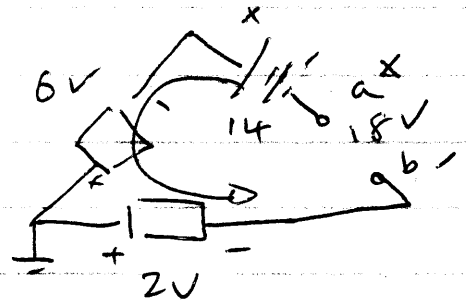
$V_x = 90 - 40 = \underline{50\,V} \Rightarrow$

Ex. 5.12



(a) ⇒ − +

b ⇒ − + Blind ?



V_{ab} = ?

$14V + 6V - 2V + V_{ab} = 0$

$14V + 6V = 2V + V_{ab}$

rise rise drop

$20V = 2V + V_{ab}$

$V_{ab} = 18V$ ①

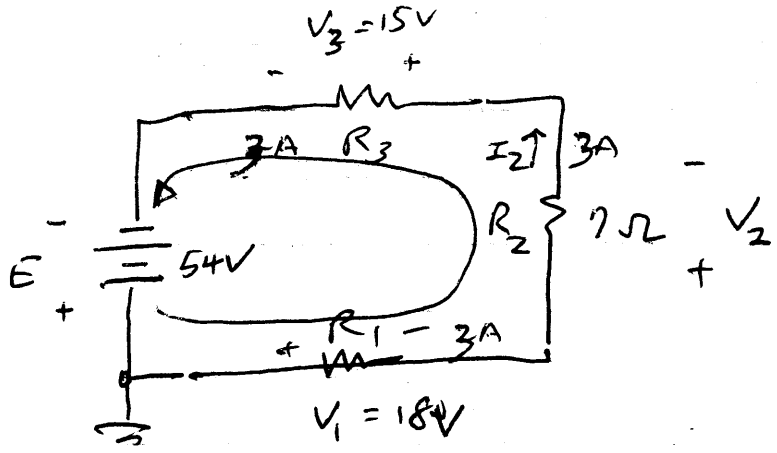
$14 + 6 - 2 + V_{ba} = 0$

$18 + V_{ba} = 0$

$V_{ba} = -18V$

$V_{ab} = 18V$

EX. 5.13



$$E = V_1 + V_2 + V_3$$

$$54 = 18 + V_2 + 15$$

$$V_2 = 54 - (33) = 21\ V$$

OHM's LAW

$$I_2 = \frac{V_2}{R_2} = \frac{21\ V}{7\ \Omega} = 3\ A$$

Power Consumption

$$P_T = P_1 + P_2 + P_3 = I^2R_1 + I^2R_2 + I^2 \cdot R_3$$

$$= 9(R_1 + R_2 + R_3)$$

$$P_T = P_1 + P_2 + P_3$$

$$= V_1 \cdot I + I^2 \cdot R_2 + V_3 \cdot I$$

$$= (3 * 18) + (9 * 7) + (3 * 15)$$

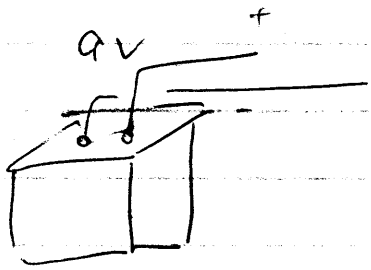
$$= 54_W + 63_W + 45_W = 162 \text{ Watts}$$

63
54
45
162

Runing for 2 hr

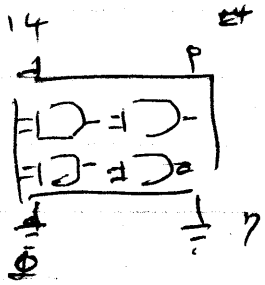
$$KWH = 162^W \times 2hr = 324\ WH$$

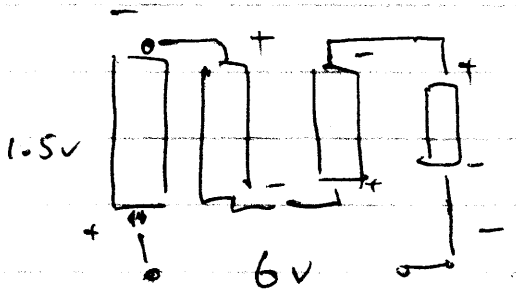
$$= 0.324\ KWH$$



5v

V_{cc}





?

zener
5.1V

7805 5v IC regulator