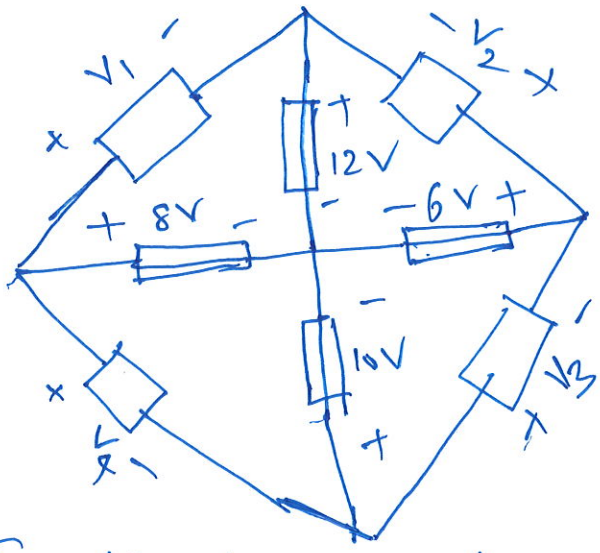
EECE105L TUTORIAL SHEET -02

SOLUTIONS

1.



In the loop containing v_1, apply KVL

$$8 - v_1 - 12 = 0 \Rightarrow v_1 = -4V$$

KVL in loop containing v_2

$$v_2 - 6 + 12 = 0 \Rightarrow v_2 = -6V$$

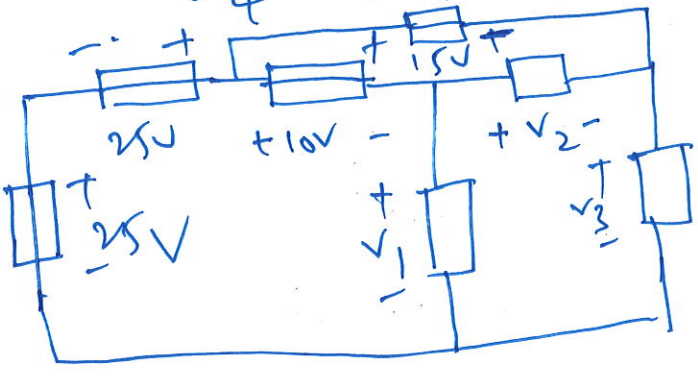
KVL in loop containing v_3

$$v_3 - 10 + 6 = 0 \Rightarrow v_3 = 4V$$

KVL in loop containing v_4

$$v_4 - 8 + 10 = 0 \Rightarrow v_4 = -2V$$

2.



Applying KVL in the loop containing v_2,

$v_2 + 10 - 15 = 0 \Rightarrow v_2 = 5\,V$

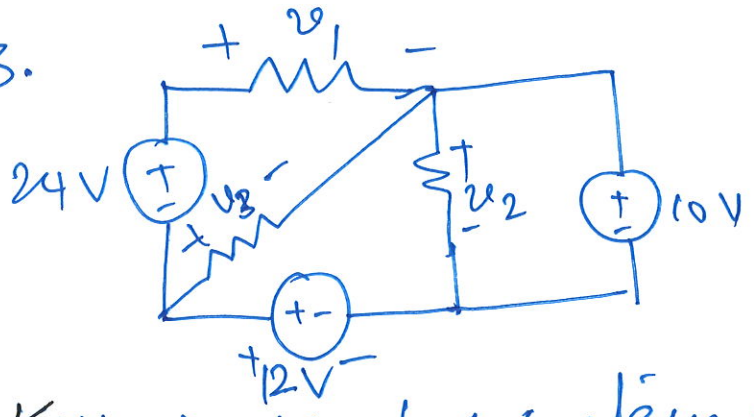
KVL in the loop containing v_1,

$25 + 25 - 10 - v_1 = 0 \Rightarrow v_1 = 40\,V$

KVL in the loop containing v_1, v_2, and v_3

$v_1 - v_2 - v_3 = 0 \Rightarrow v_3 = v_1 - v_2 = 35\,V$

3.



KVL in the loop containing v_2,

$v_2 - 10 = 0 \Rightarrow v_2 = 10\,V$

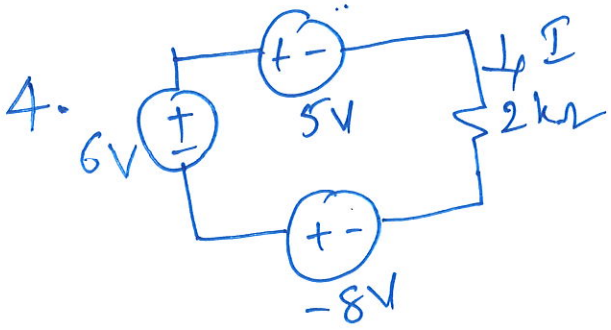
KVL in the loop with v_2 and v_3

$12 - v_3 - v_2 = 0 \Rightarrow v_3 = -v_2 + 12 = 2\,V$

KVL in the loop with v_1 and v_3

$24 - v_1 + v_3 = 0 \Rightarrow v_1 = 26\,V$

4.



Apply KVL

$6 - 5 - 2k \cdot I + (-8) = 0$

$\Rightarrow I = -3.5\,mA$