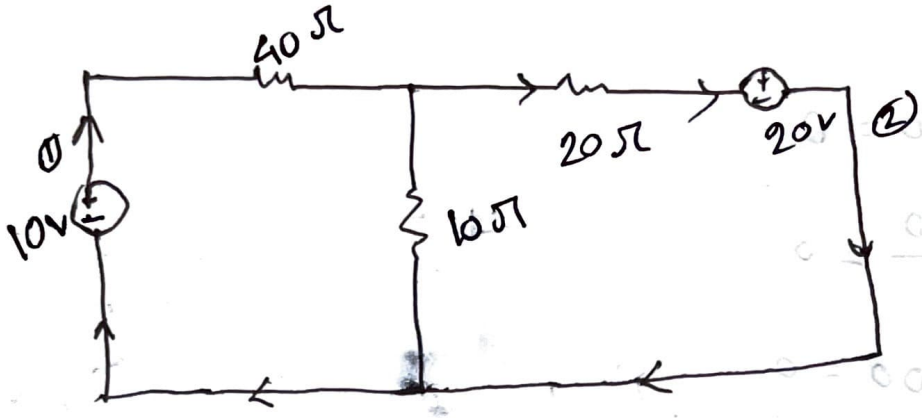
(1)



① $\Rightarrow V_1 = -10\,V$ ——— (I)

② $\Rightarrow \frac{V_2 - V_1}{10} + \frac{V_2 - 20}{20} = 0$

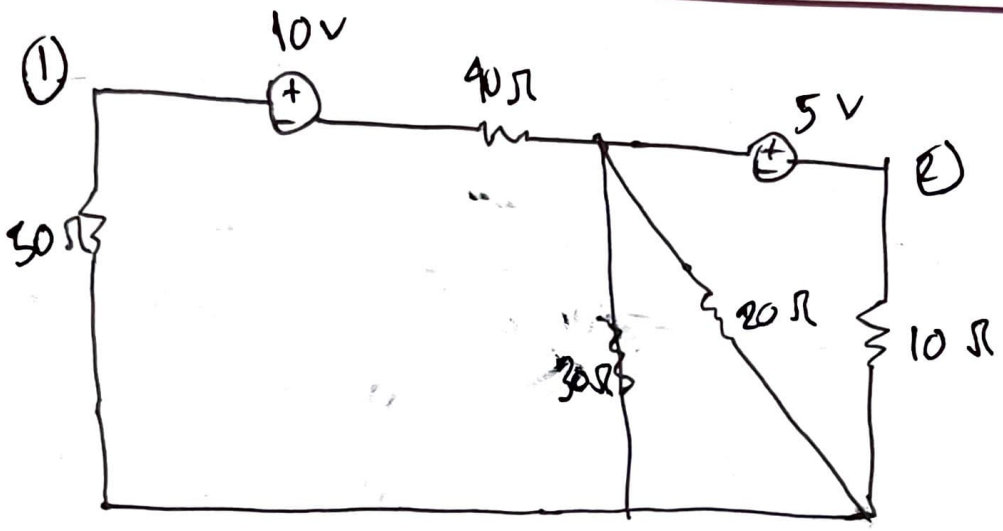
$\Rightarrow \frac{2V_2 - 2V_1 + V_2 - 20}{20} = 0$

$\Rightarrow 3V_2 - 2V_1 = 20$ ——— (II)

Analysis between (I) and (II)

$V_1 = -10\,V$

$V_2 = -25\,V$



$$① \Rightarrow \frac{V_1}{50} + \frac{V_1 - 20}{40} + \frac{V_1 - V_2}{30} = 0$$

$$\Rightarrow \frac{12V_1 + 15V_1 - 300 + 20V_1 - 20V_2}{600} = 0$$

$$\Rightarrow 47V_1 - 20V_2 = 300 \quad \text{——} ①$$

$$② \Rightarrow 30 \| 20 \Rightarrow \frac{30 \times 20}{30 + 20}$$

$$\Rightarrow 12$$

$$\frac{V_2 - V_1}{12} + \frac{V_2}{5} + \frac{V_2}{10} = 0$$

$$\Rightarrow \frac{5V_2 - 5V_1 + 12V_2 + 6V_2}{60} = 0$$

$$\Rightarrow 23V_2 - 5V_1 = 0$$

$$\Rightarrow -5V_1 + 23V_2 = 0 \quad \text{——} ②$$

Analysing ① and ②

$V_1 = 7.033$ V

$V_2 = 1.52$ V