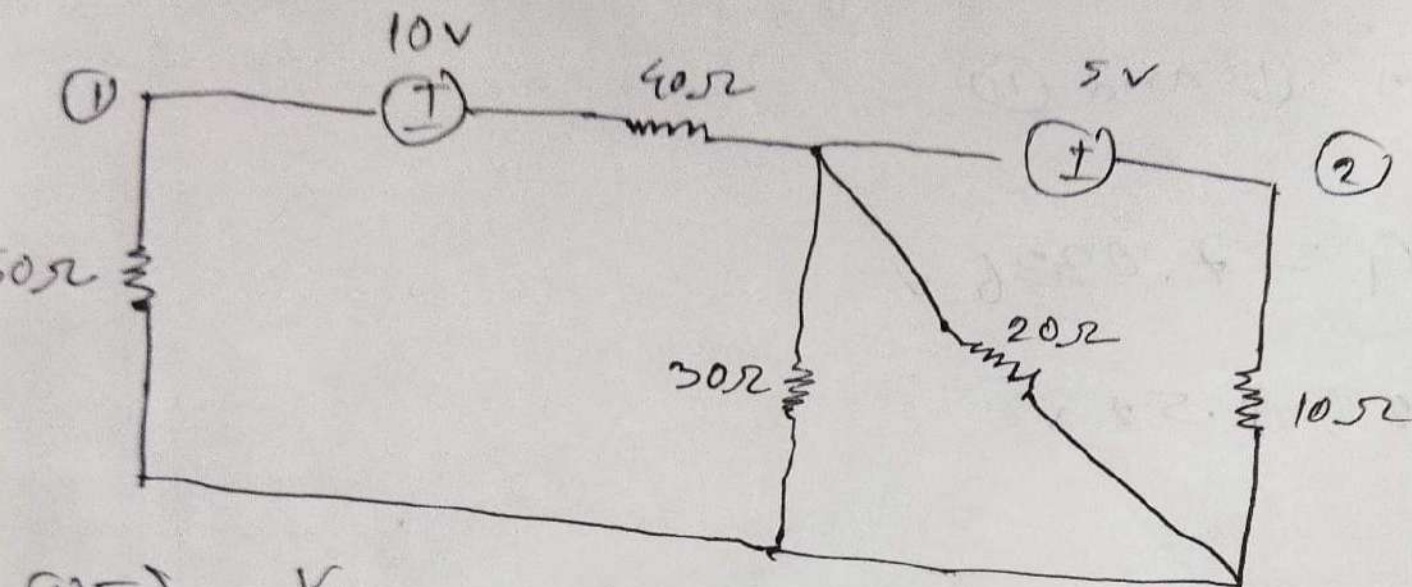


$$V_1 = -10V$$

$$V_2 = -25V$$

(2)



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

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

$$\Rightarrow \cancel{20V_1} 42V_1 - 20V_2 = 300 \quad \text{--- (1)}$$

$$\textcircled{2} \Rightarrow \frac{20 \parallel 10}{20 + 10} = \frac{20 \times 10}{20 + 10} = 1$$

$$\textcircled{2} \Rightarrow 30 \parallel 20 \Rightarrow \frac{30 \times 20}{30 + 20}$$

$$\Rightarrow 12$$

$$\therefore \frac{V_2 - V_1}{12} + \frac{V_2}{105} + \frac{V_2}{10} = 0$$

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

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

$$\Rightarrow -5V_1 + 23V_2 = 0 \quad \text{--- (11)}$$

~~Analysis~~

Analysis (1) and (11)

$$V_1 = 7.0336 \text{ V}$$

$$V_2 = 1.52 \text{ V}$$