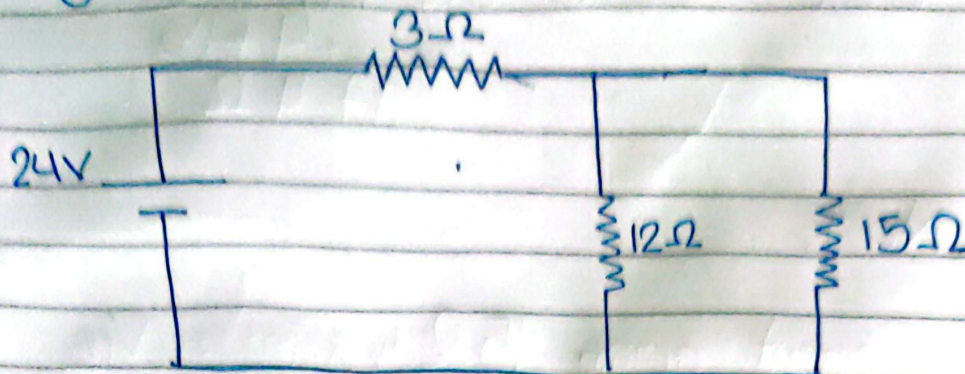
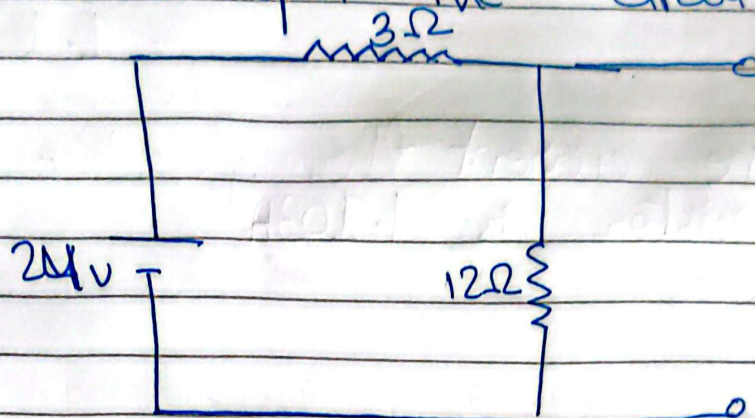


Find the current through  $15\ \Omega$  resistor using Thevenin's theorem.



Step 1 Remove the  $15\ \Omega$  resistor and open the circuit



Now we have  $3\ \Omega$  and  $12\ \Omega$  resistor in parallel.

$$R_{th} = \frac{3 \times 12}{3 + 12} = 2.4\ \Omega$$

For  $V_{th}$  apply voltage divider between  $3\ \Omega$  and  $12\ \Omega$

$$V_{th} = 24 \times \frac{12}{3 + 12} = 19.2V$$



Reconnecting the  $15\Omega$  resistor,  
( $R_T$ )

$$\begin{aligned}\text{Total Resistance} &= R_{th} + 15 \\ &= 2.4 + 15 \\ &= 17.4\Omega\end{aligned}$$

Now,

$$\begin{aligned}\text{Current across } 15\Omega \text{ resistor} &= \frac{V_{th}}{R_T} \\ &= \frac{19.2}{17.4} \\ &= 1.103\text{ A}\end{aligned}$$

$\therefore$  The current through the  $15\Omega$  resistor is  $1.103\text{ A}$