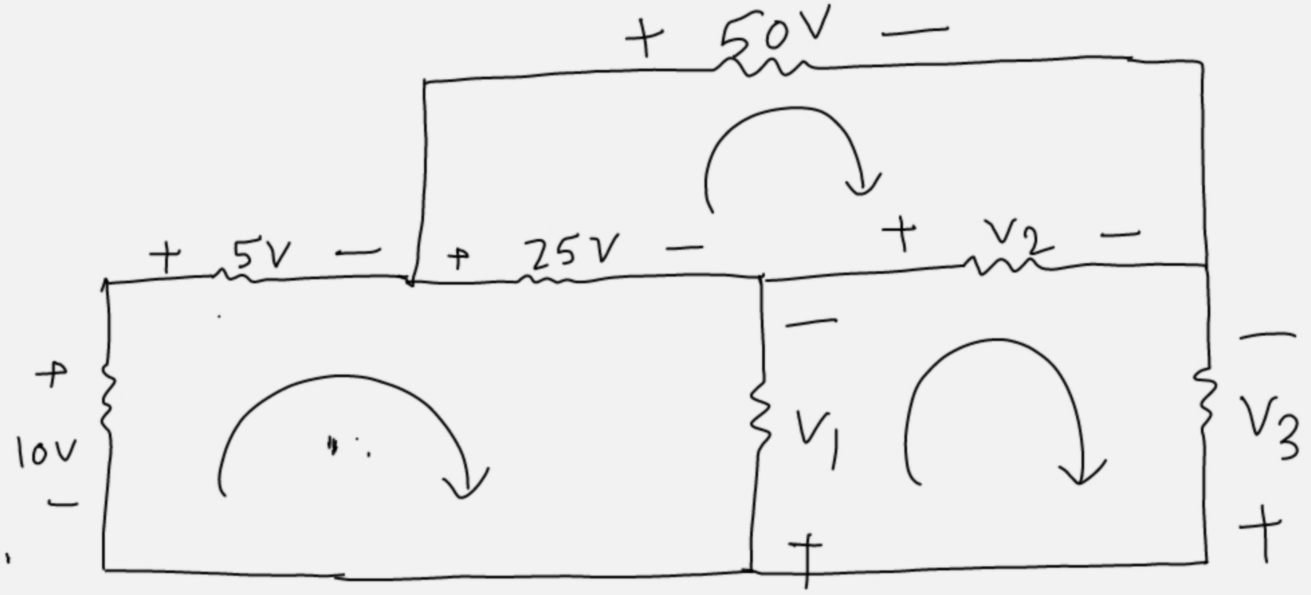


Find V_1 = ?

V_2 = ?

V_3 = ?

$-V_1 - V_2 + V_3 = 0$ ∴

$-20 - 25 + V_3 = 0$

$V_3 = 45V$

$+10 - 5 - 25 + V_1 = 0$

$V_1 = 20V$

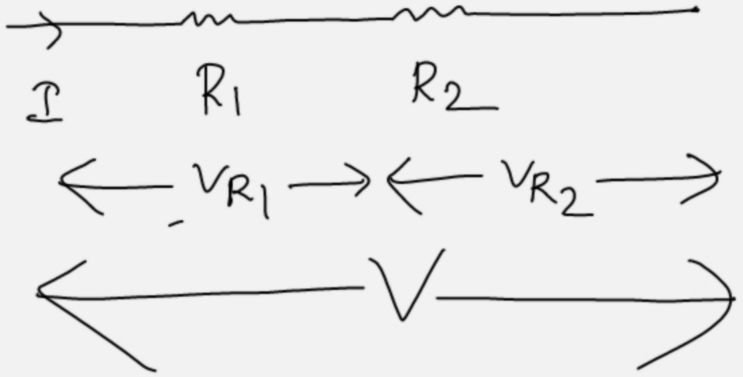
$-50 + V_2 + 25 = 0$

$V_2 = 25V$

Voltage Division Rule

$$V_{R_1} = V\left[\frac{R_1}{R_1+R_2}\right]$$

$$V_{R_2} = V\left[\frac{R_2}{R_1+R_2}\right]$$



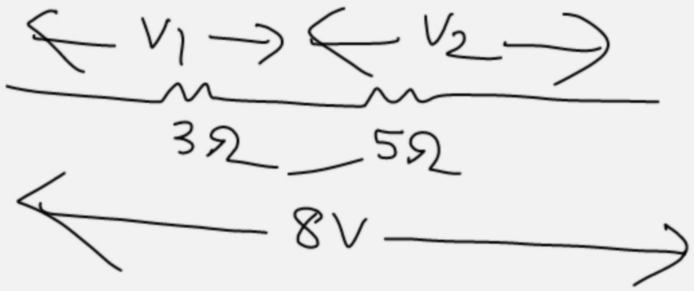
$$V = I\left[R_1+R_2\right] \quad \text{---} (1)$$

$$V_{R_1} = IR_1 \quad \text{---} (2)$$

$$V_{R_2} = IR_2 \quad \text{---} (3)$$

$$\frac{equ^n(3)}{equ^n(1)} = \frac{V_{R_2}}{V} = \frac{R_2}{R_1+R_2}$$

$$\frac{equ^n(2)}{equ^n(1)} = \frac{V_{R_1}}{V} = \left[\frac{R_1}{R_1+R_2}\right]$$



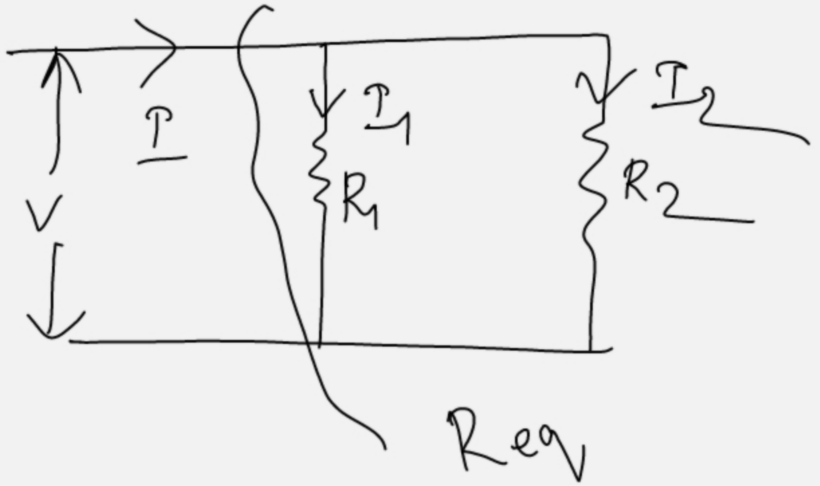
Current Division Rule

$$I_1 = \frac{V}{R_1}$$

$$= I \left[\frac{R_1 R_2}{R_1 + R_2} \right]$$

$$\frac{}{R_1}$$

$$\boxed{I_1 = I \left[\frac{R_2}{R_1 + R_2} \right]}$$



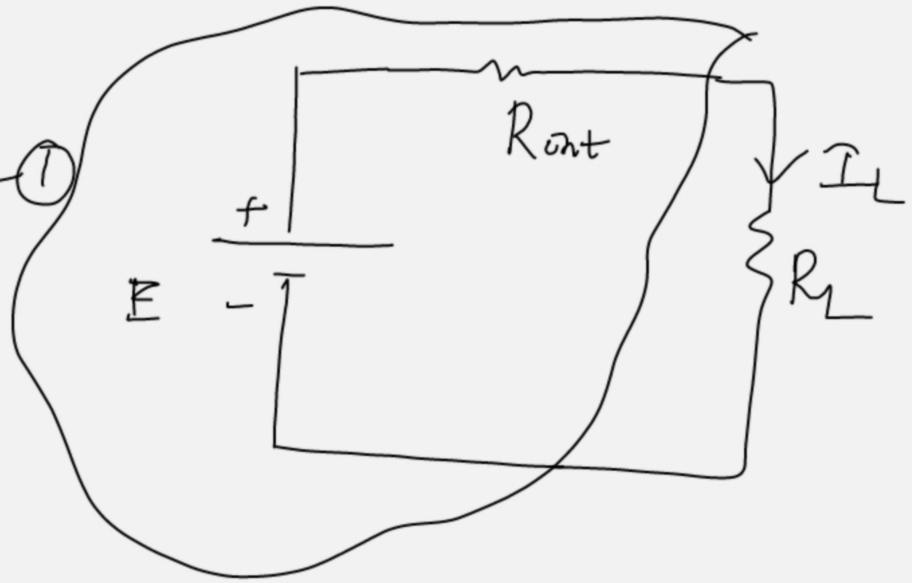
$$I = \frac{V}{R_{eq}}$$

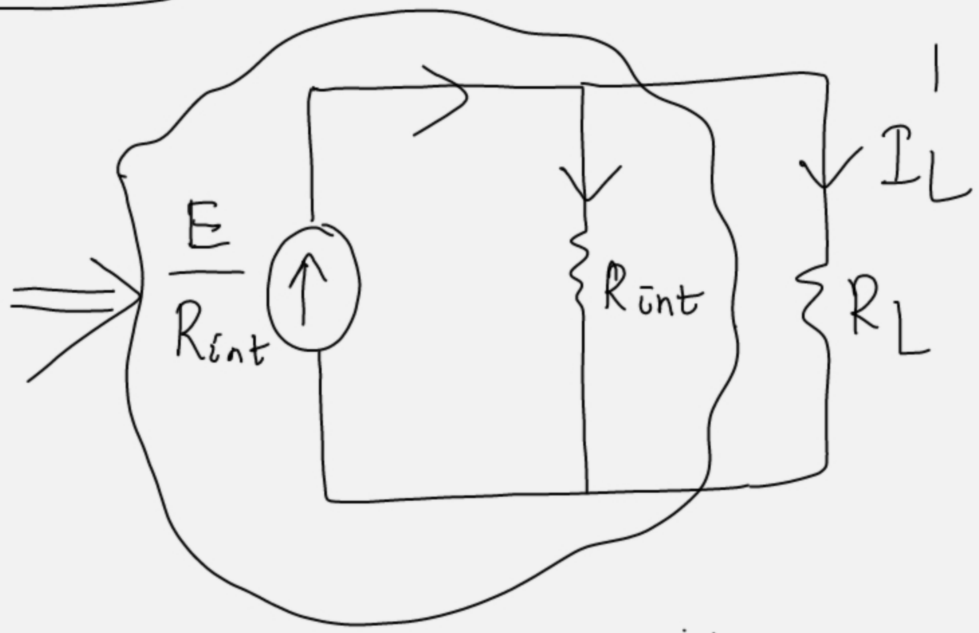
$$I = \frac{V}{\left[\frac{R_1 R_2}{R_1 + R_2} \right]}$$

$$\boxed{I_2 = I \left[\frac{R_1}{R_1 + R_2} \right]}$$

Source Conversion

$$I_L = \frac{E}{R_{int} + R_L}$$

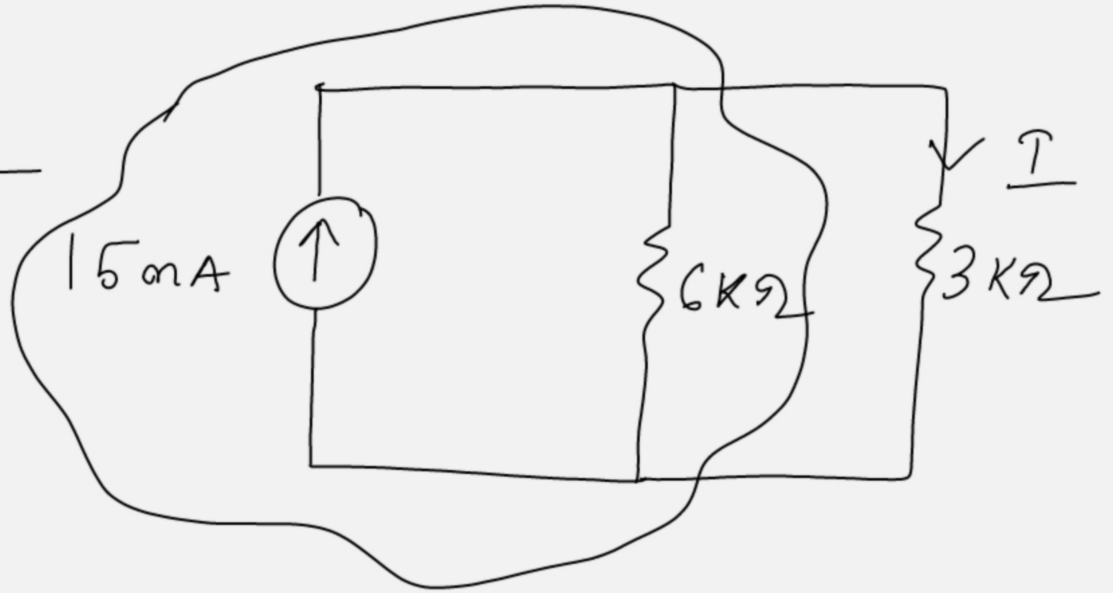




$$I_L' = \frac{E}{R_{int}} \left[\frac{R_{int}}{R_{int} + R_L} \right]$$

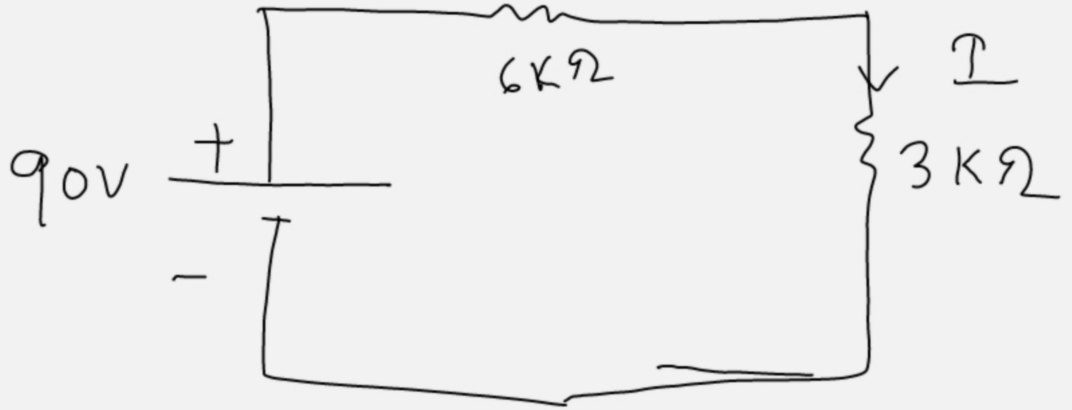
$$I_L' = \frac{E}{R_{int} + R_L}$$

Ex÷1



Find: $I_{3K\Omega}$ = ?

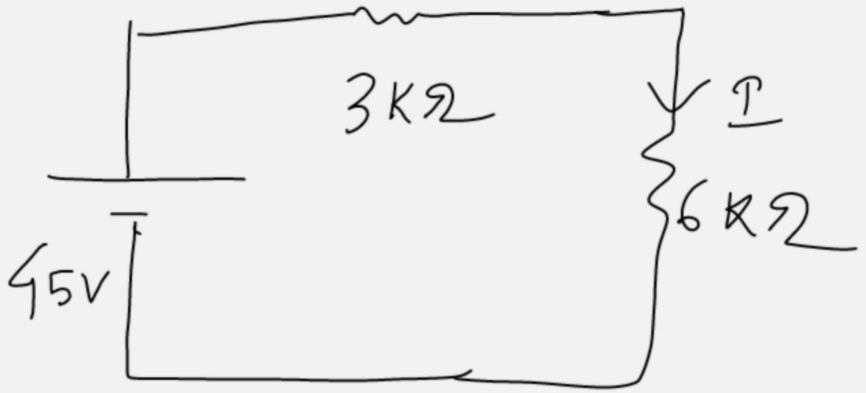
using Source Conversion?



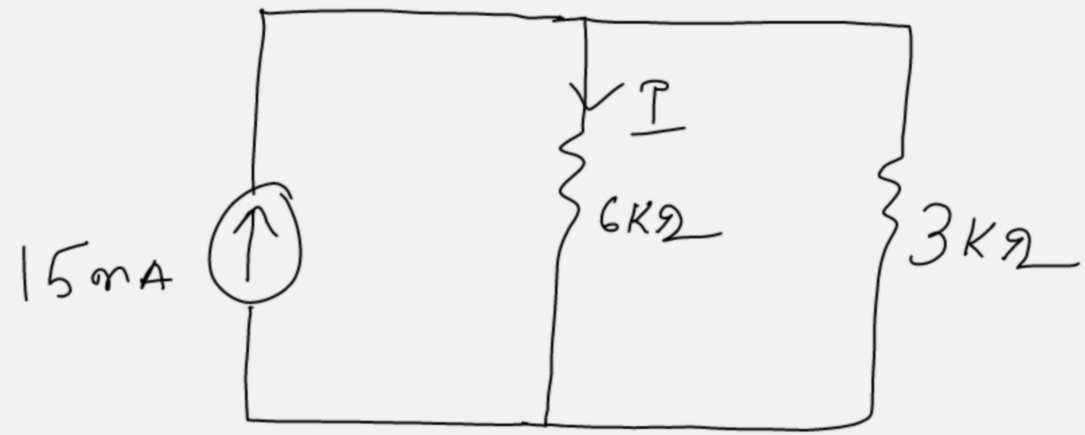
$$I = \frac{90V}{6K\Omega + 3K\Omega}$$

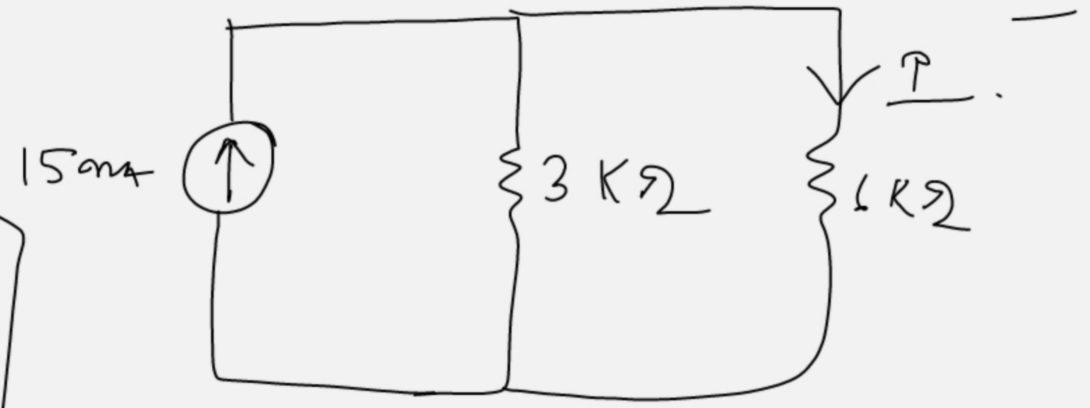
$$I = 10mA$$

Ex:-2



$$I = \frac{45}{(3+6)K\Omega} = 5\,mA$$

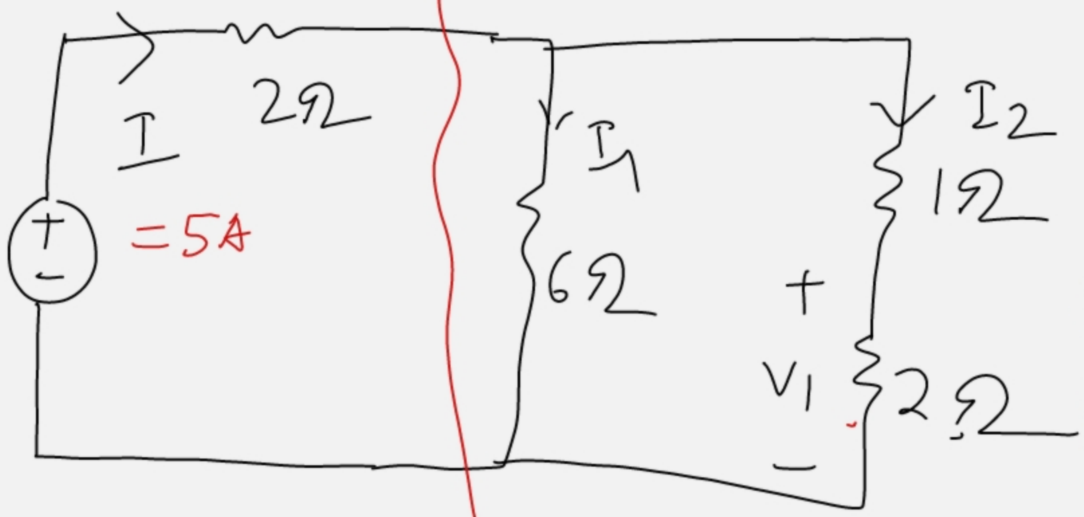




Find $I_{6K\Omega}$ using Source conversion?

Find V_1 = ?

Ex:3



$R_{eq} = 6 \| 3$

$= 2\Omega$

$I = \frac{V}{2 + R_{eq}} = \frac{20}{2 + R_{eq}}$

$\therefore 5A$

$V_1 = 2I_2$

$= 2 \times \frac{30}{9}$

$V_1 = \frac{60}{9} V$

$V_1 = 2I_2$

$I_2 = I \times \left[\frac{R_1}{R_1 + R_2} \right]$

$I_2 = 5A \left[\frac{6}{6+3} \right]$

$I_2 = \frac{30}{9} A$