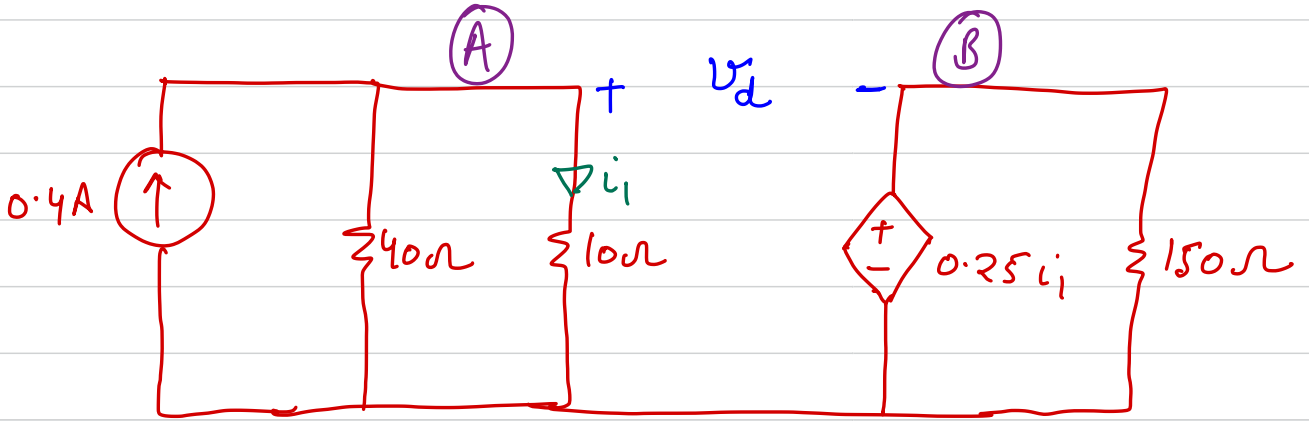
Find $v_d$ for the circuit




Ans: (3.12)

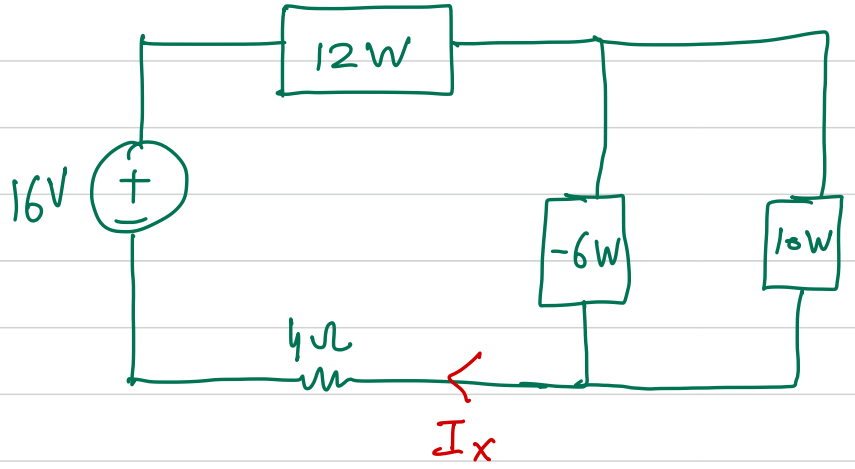
Q 36 P-78

$v_d = V_A - V_B$ , $V_A = \left(0.4 \times \frac{40}{50}\right) \times 10 = 3.2\,V$

$V_B = 0.25\, i_1 = 0.25 \times \frac{40}{50} \times 0.4 = 0.08$

$V_d = 3.2 - 0.08 = 3.12$

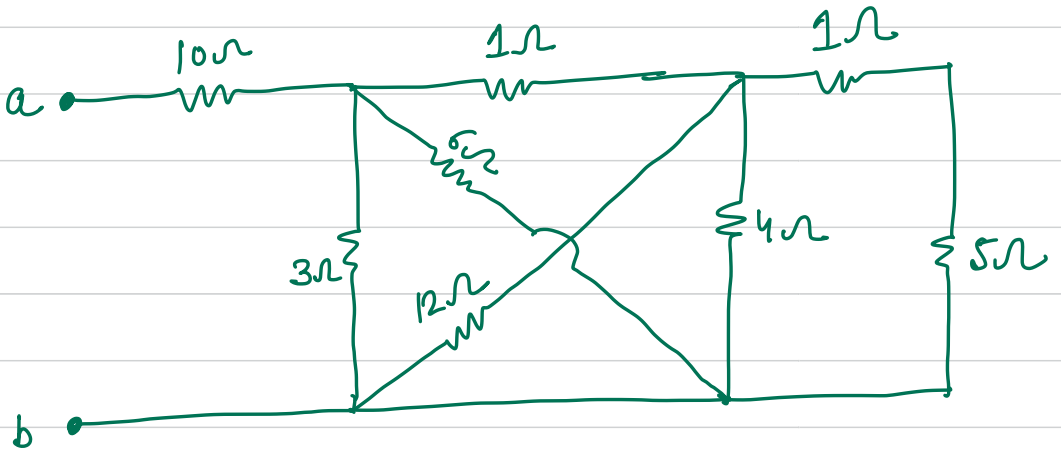
**Q2** Determine the value of the current $I_x$ in the circuit



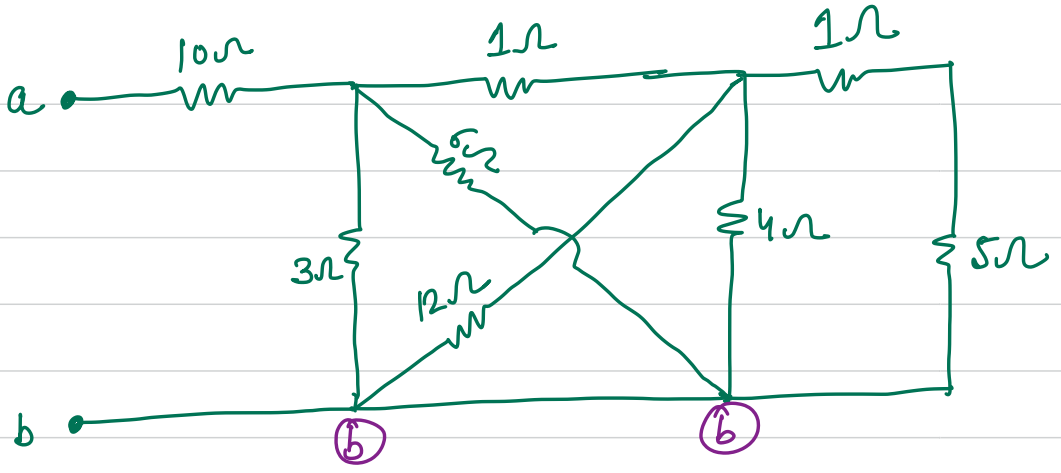

$-16 \times I_x + 12 - 6 + 10 + 4I_x^2 = 0$ (Total Power dissipation = 0)

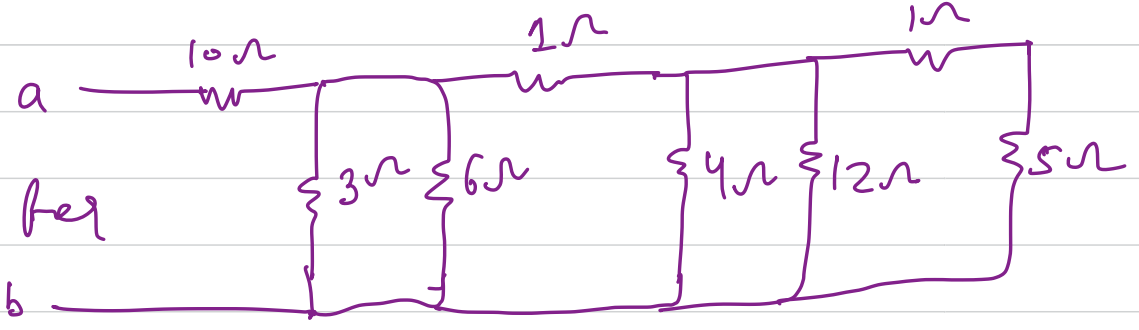
$I_x = 2A$

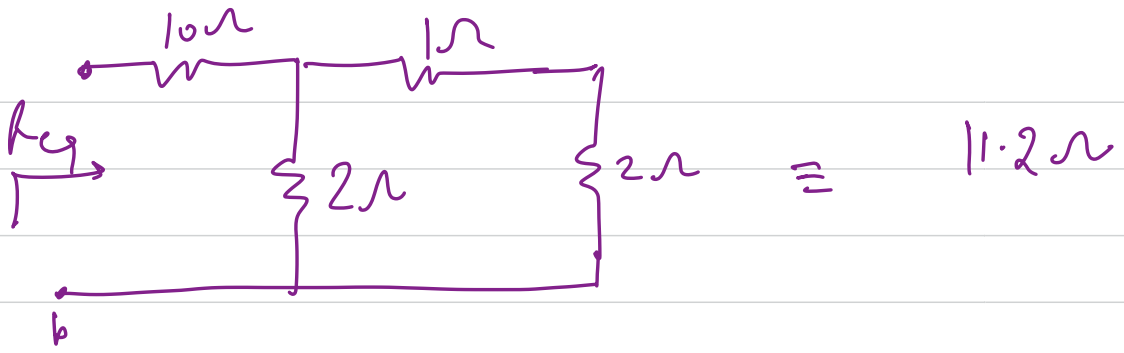
Q Calculate the equivalent resistance $R_{ab}$ in the circuit




Ans: 11.2Ω

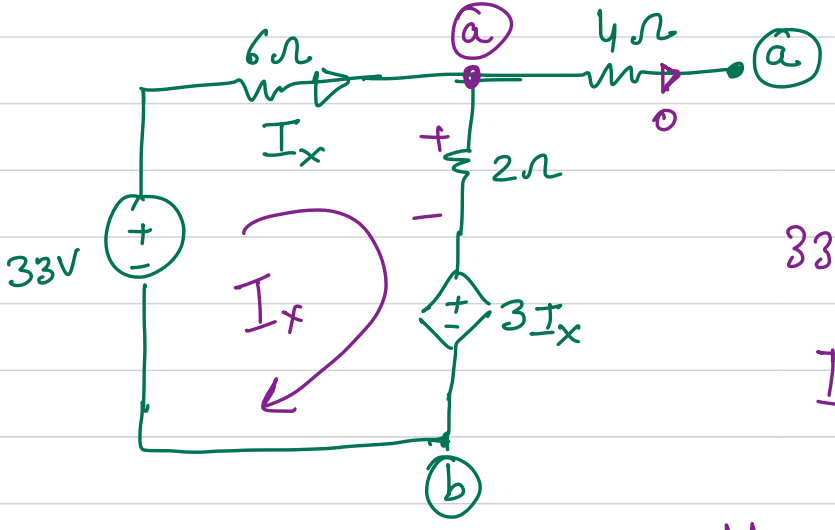

10Ω
1Ω
1Ω
a
6Ω
4Ω
5Ω
3Ω
12Ω
b
b
b


10Ω
1Ω
1Ω
a
3Ω
6Ω
4Ω
12Ω
5Ω
Req
b




$\equiv$ 11.2Ω

Q Calculate $V_{ab}$




$33 - 6I_x - 2I_x - 3I_x = 0$

$I_x = 3$ Amp.

$V_{ab} = 2 \times 3 + 3 \times 3 = 6 + 9$

$= 15V$

$V_{ab} = 15V$