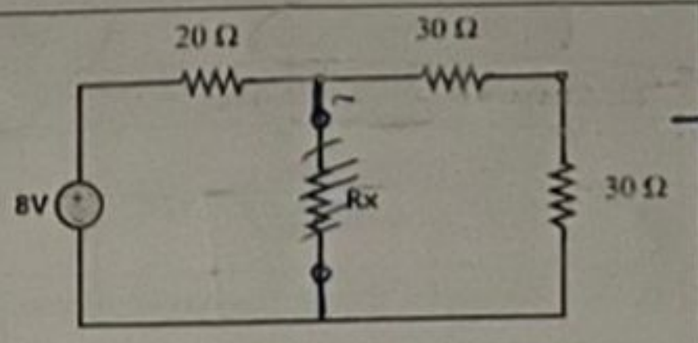
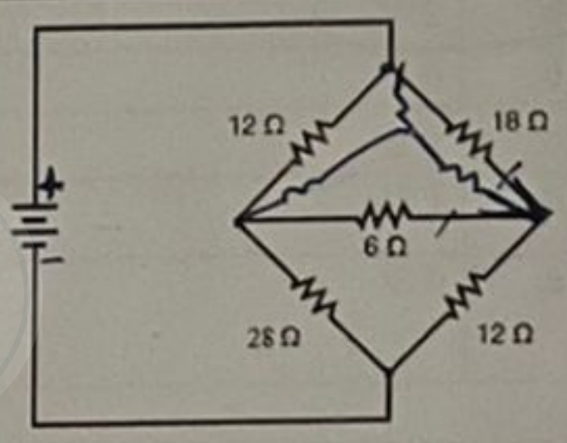
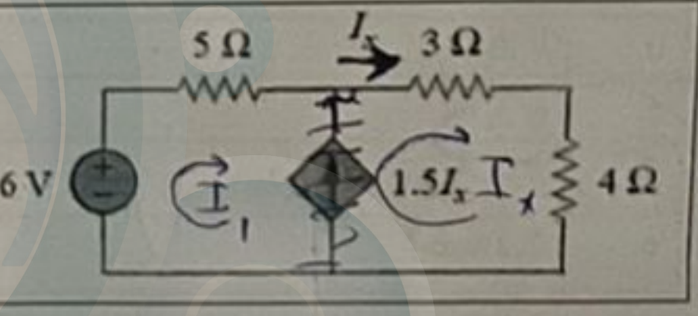
Q7	If you replace R_x in the following circuit by **an open circuit**, the driven current by the source is:
a.	0.1 A
b.	0.133 A
c.	0.4 A
d.	8 A
e.	0 A



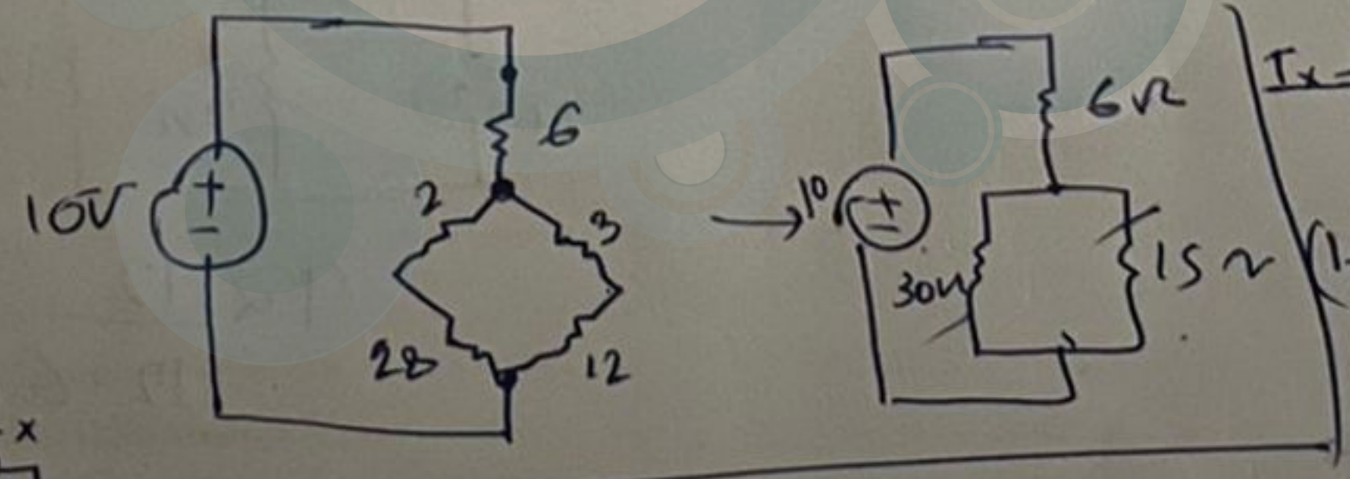
Q8	Use Δ-Y transformation to find the equivalent resistance seen by the 10V source for the circuit shown.
a.	8 Ω
b.	76 Ω
c.	14.62 Ω
d.	16 Ω
e.	21.6 Ω



Q9	For the circuit shown, the current I_x is:
a.	0.857 A
b.	1.33 A
c.	0.5 A
d.	1 A
e.	0 A

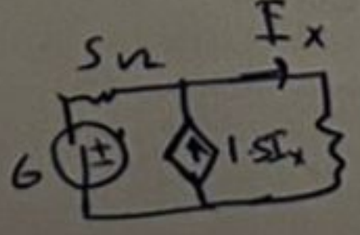


$I_x = 1.5I_x \cdot \frac{5}{12}$



$I_x = (1.5I_x) \cdot \frac{5}{(5+7)}$

$(1-1.5)I_x = \frac{5}{12}$



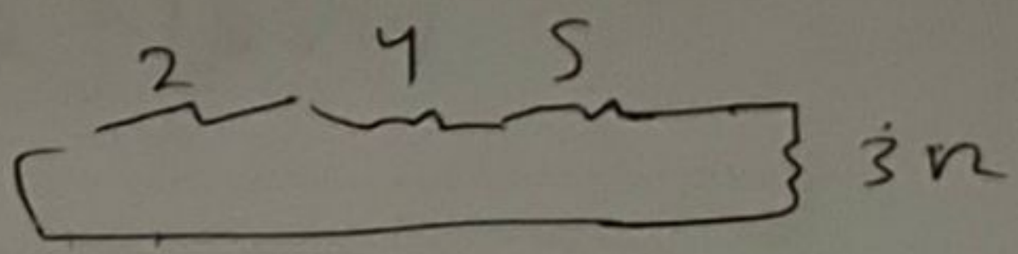
$1.5\,I_x = I_x + I_1$ — (1)

$-6 + 5I_1 + 3I_x + 5I_x = 0$ — (2)

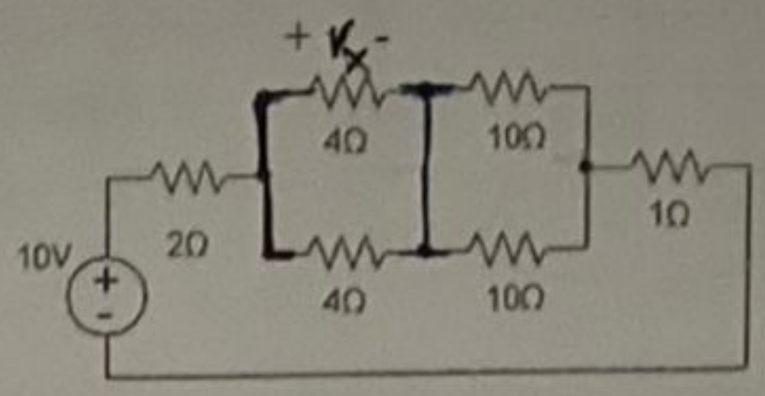
$(1.5-1)I_x + I_1 = 0$ — (1)

$8I_x + 5I_1 = 6$

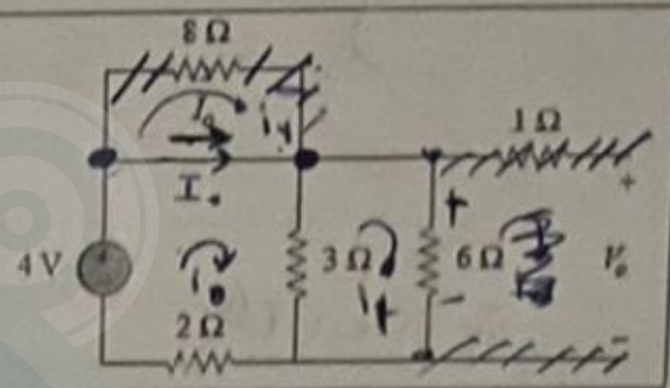
10V



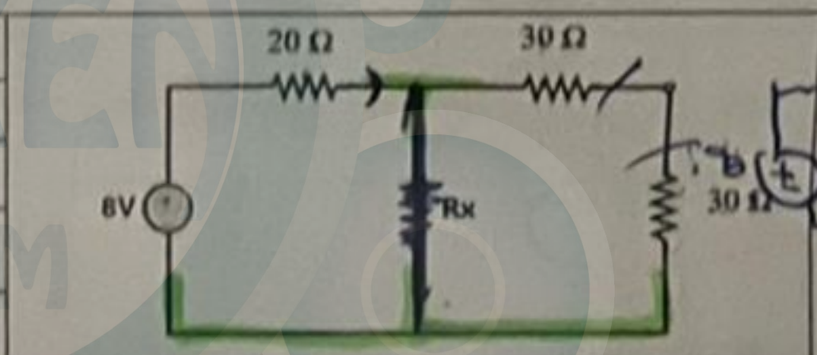
Q1	For the circuit shown, the voltage v_x is:
a.	2 V
b.	2.86 V
c.	2.5 V
d.	1 V
e.	0 V

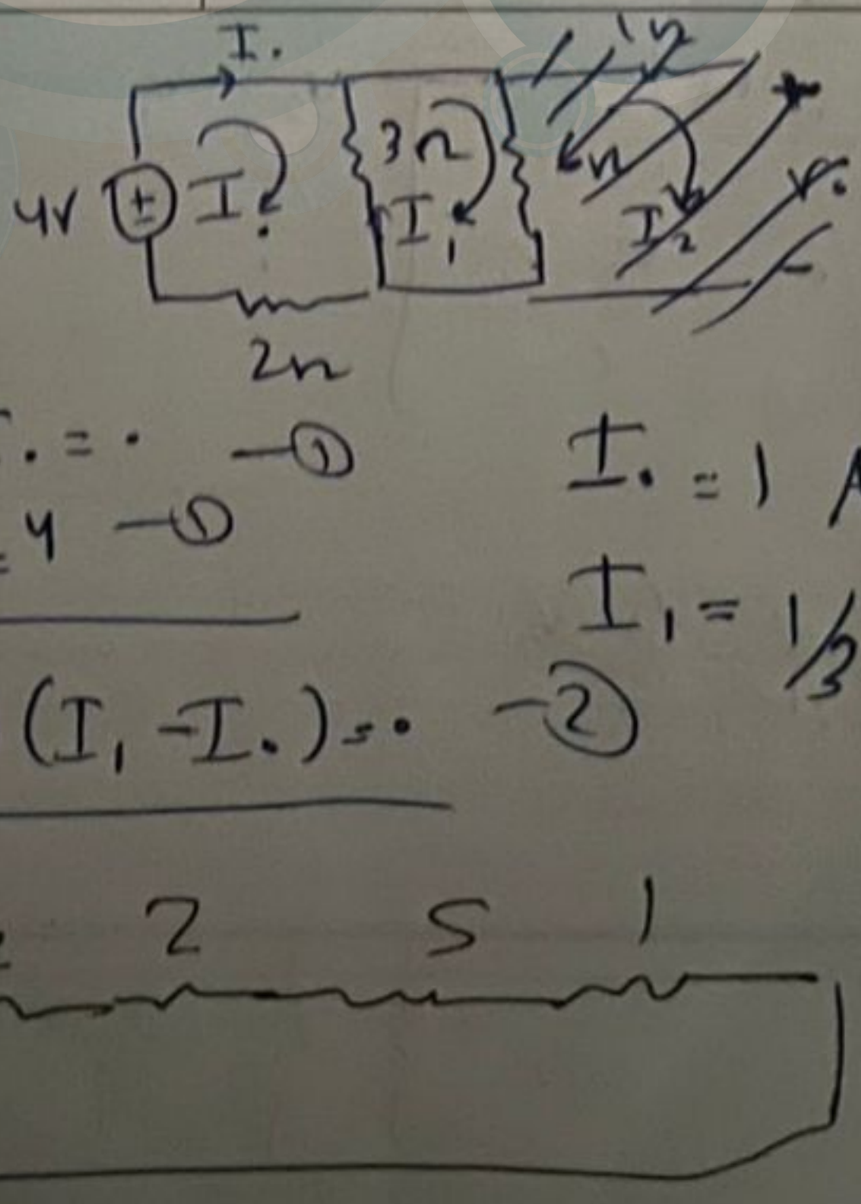


Q2	For the circuit shown, I_o is:
a.	0.5 A
b.	1.5 A
c.	0.33 A
d.	1 A
e.	0 A



Q3	If you replace R_x in the following circuit by a **short circuit**, the driven current by the source is:
a.	0.133 A
b.	0 A
c.	0.4 A
d.	0.1 A
e.	None of these





$-4 + 3(I_. - I_1) + 2I_. = 0$ — ①

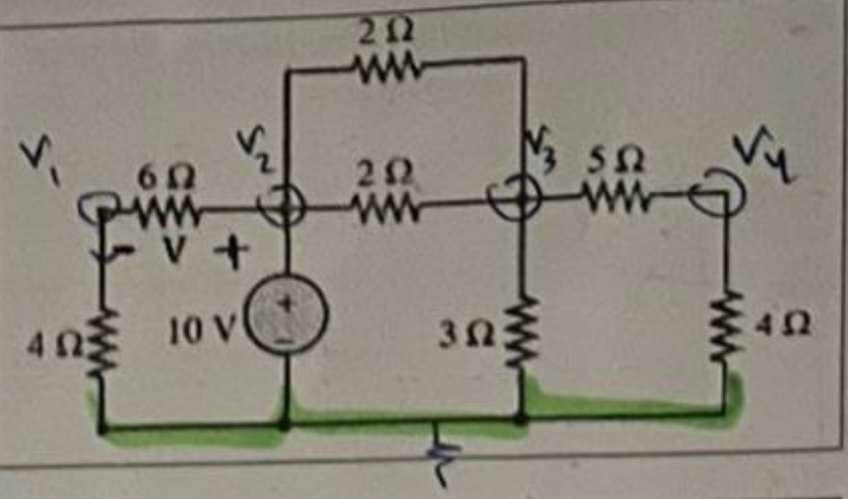
$5I_. - 3I_1 = 4$ — ①

$I_. = 1$ A

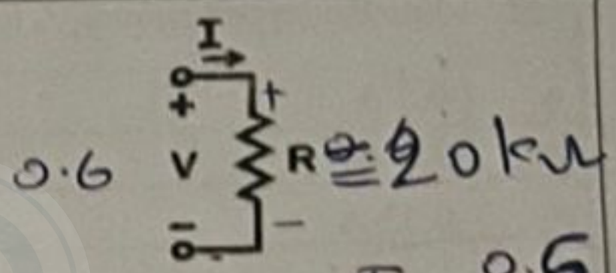
$I_1 = 1/3$ A

$6(I_1 \ldots) + 3(I_1 - I_.) = 0$ — ②

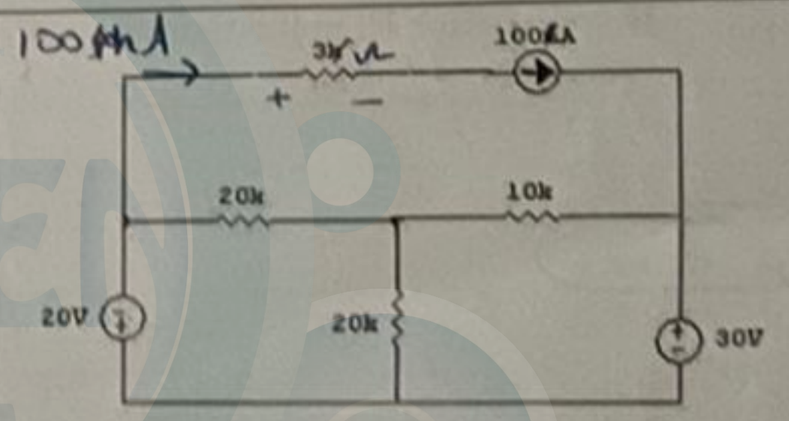
Q4	For the circuit shown, the voltage across the 6Ω resistor is:
a.	4 V
b.	10 V
c.	-10 V
d.	-6 V
e.	6 V



Q5	If the voltage across a resistor is 0.6V, and R=20 KΩ, the current flowing through the resistor is
a.	30 pA
b.	30 μA
c.	0.3 pA
d.	0.3 μA
e.	30 mA



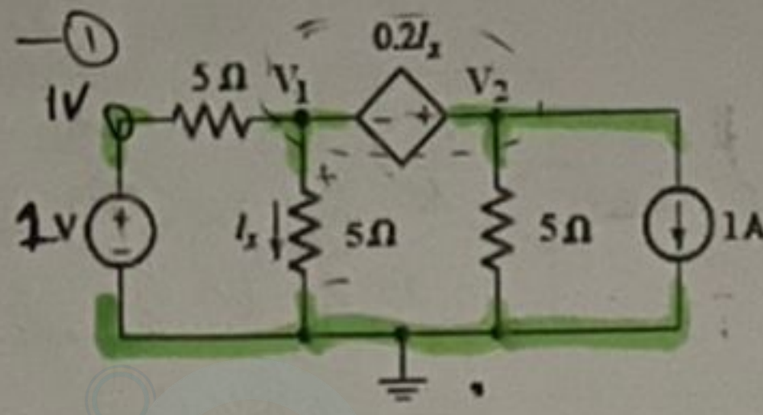
Q6	For the circuit shown, the absorbed power in the 3k ohm resistor
a.	900 W
b.	3.333 μW
c.	33.3 mW
d.	300 W
e.	30 W



$$I_x = \frac{V_1}{5} = \frac{\frac{-25}{19}}{5}$$

** For the circuit shown, use **Nodal Analysis** to answer questions (13-16)

$$V_2 - V_1 = 0.2 \times \frac{V_1}{5}$$



$$\frac{1 - V_1}{5} - 1 \quad -\frac{V_1}{5} - \frac{V_2}{5} = 0$$

$$\left(\frac{-1}{5} - \frac{1}{5}\right)V_1 - \frac{V_2}{5} = 1 - \frac{1}{5}$$

$$\left(-1 - \frac{0.2}{5}\right)V_1 + V_2 = 0$$

$$\frac{1 - V_1}{5} \longrightarrow \quad \frac{V_1}{5} \quad \frac{V_2}{5} \quad 1$$

Q13	The nodal voltage V_1 is:
a.	-2.632 V
b.	2.632 V
c.	-1.316 V
d.	1 V
e.	0.2 V

Q14	The current I_x is:
a.	3.375 A
b.	-0.2632 A
c.	-3.375 A
d.	1.37 A
e.	-0.844 A

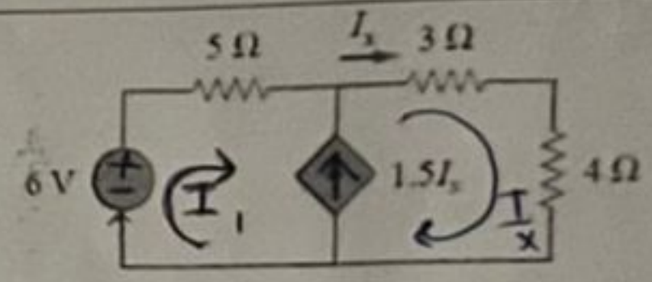
Q15	The voltage at the reference point is:
a.	1 V
b.	-1 V
c.	5 V
d.	-5 V
e.	0 V

Q16	The nodal voltage V_2 is:
a.	6.75 V
b.	1 V
c.	-1.37 V
d.	-4.22 V
e.	0.3 V

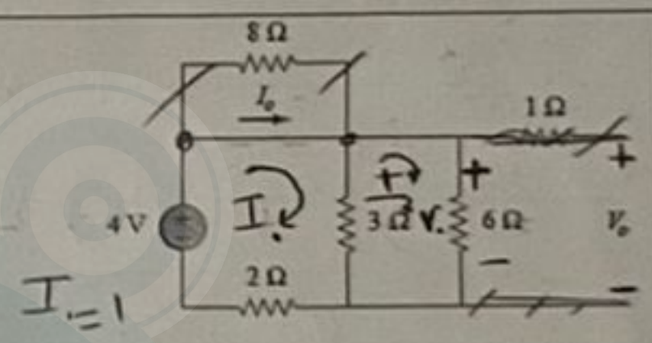
$-6 + 5I_1 + 3I_x + 4I_x = 0 \longrightarrow I_x = 1.33$

$1.5I_x = I_x - I_1 \qquad I_1 = -2/3$

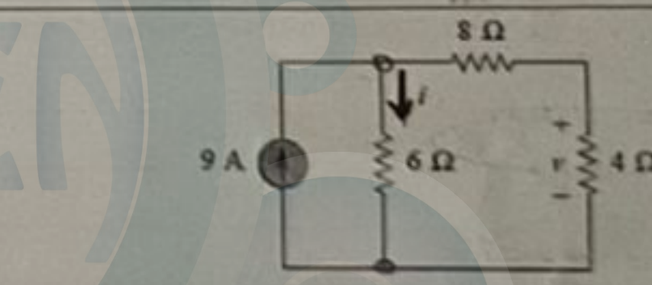
Q10	For the circuit shown, the absorbed or generated power of the 6V source is:
a.	4 W, absorbed
b.	4 W, generated
c.	8 W, generated
d.	8 W, absorbed
e.	None of these

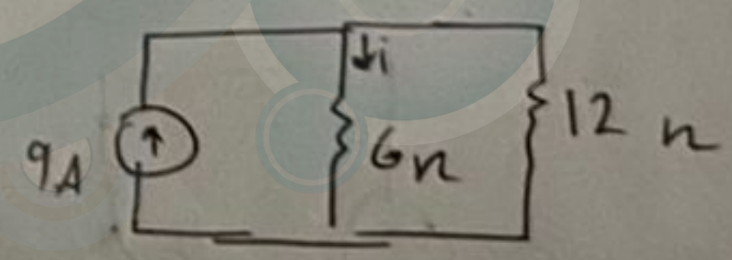


Q11	For the circuit shown, V_o is:
a.	2 V
b.	4 V
c.	3 V
d.	1 V
e.	0 V



Q12	For the circuit shown, the current through the 6-Ω resistor I is:
a.	3 A
b.	9 A
c.	6 A
d.	1.5 A
e.	5.14 A





$9 \propto \frac{12}{12+6}$