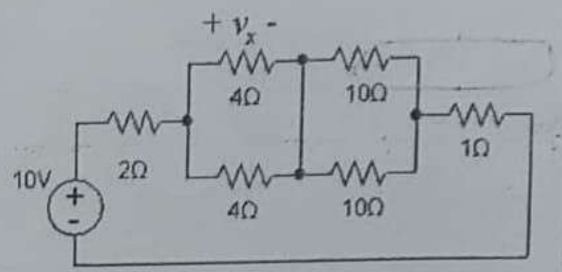
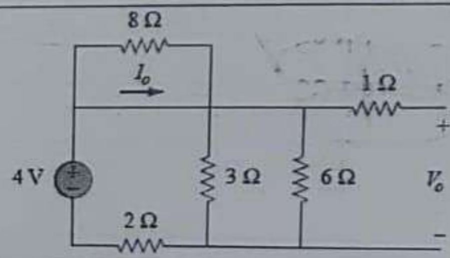
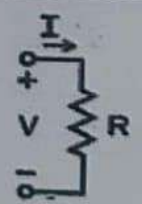
Q4	For the circuit shown, the voltage v_x is:
a.	2.86 V
b.	1 V
c.	2.5 V
d.	0 V
e.	2 V



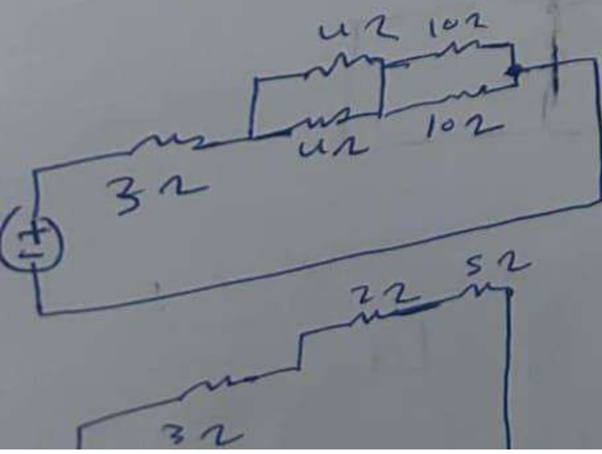
Q5	For the circuit shown, I_o is:
a.	1.5 A
b.	0.5 A
c.	1 A
d.	0 A
e.	0.33 A



Q6	If the voltage across a resistor is 0.6V, and R=20 KΩ, the current flowing through the resistor is
a.	30 μA
b.	30 mA
c.	0.3 pA
d.	30 pA
e.	0.3 μA



$I = \frac{V}{R} = \frac{0.6}{20 \times 10^3} = \frac{6 \times 10^{-1}}{20 \times 10^3}$



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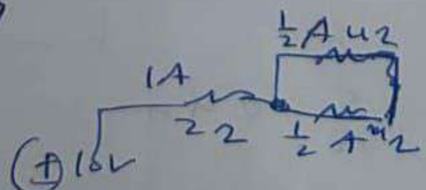


0.3

3×10^{-5}

.18

$v_x = \frac{1}{2}(4) = 2V$

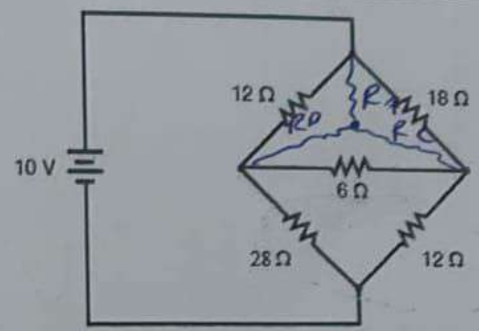
-6

$$R_A = \frac{12 \times 18}{12+6+18} = 6$$

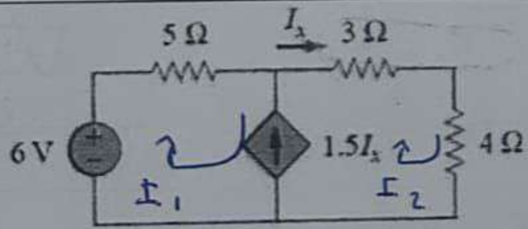
$$R_B = \frac{12 \times 6}{12+6+18} = 2\Omega$$

$$R_C = \frac{18 \times 6}{12+6+12} = 3$$

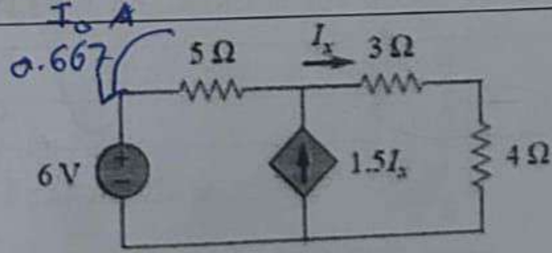
Q7	Use Δ-Y transformation to find the equivalent resistance seen by the 10V source for the circuit shown.
a.	14.62 Ω
b.	21.6 Ω
c.	16 Ω
d.	76 Ω
e.	8 Ω



Q8	For the circuit shown, the current I_x is:
a.	0.857 A
b.	1.33 A
c.	0
d.	0.5 A
e.	1 A



Q9	For the circuit shown, the absorbed or generated power of the 6V source is:
a.	8 W, generated
b.	8 W, absorbed
c.	4 W, absorbed
d.	4 W, generated
e.	None of these



$\frac{I}{2} + \frac{I}{1} = 1.5I_x$

$\frac{I}{2} = I_x$

q. 8

$\frac{I}{2} = 1 I_x$

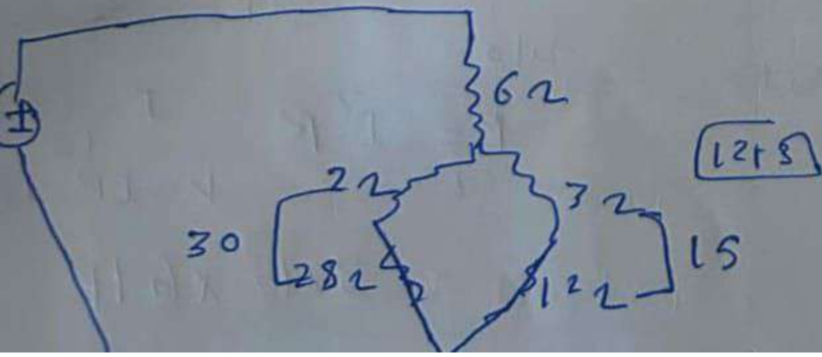
$\boxed{\frac{I}{1} - \frac{I}{2} = 1.5}$

$I_x = 1 \frac{I}{2}$

$-6 + 5I_1 + 7I_2 =$

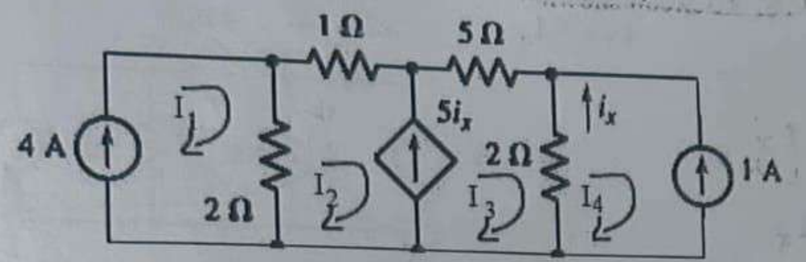
$5I_1 + 7I_2 = 6$

$-I_1 + I_x = 1.5 I_x$



$\boxed{12+3}$

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



$I_4 = -1A$

Q13	The current I_2 is:
a.	2.17 A
b.	1.4 A
c.	6.6 A
d.	2.8 A
e.	None of these

$I_1 = 4A$

$2I_2 + I_2 + 5I_3 + 2I_3 - 2I_4$

$-2(4)$

$2I_2 + I_2 + 5I_3 + 2I_3 - 2I_4 - 2I_1 = 0$

Q14	The current I_3 is:
a.	-0.72 A
b.	-0.36 A
c.	0.36 A
d.	0.72 A
e.	None of these

$3I_2 + 7I_3 - 2(-1) - 8 = 0$

$3I_2 + 7I_3 + 2 - 8 = 0$

$I_4 - I_3 = I_x$

$-1 - I_3 = I_x$

① $\boxed{3I_2 + 7I_3 = 6}$

Q15	The current I_4 is:
a.	-4 A
b.	1 A
c.	-1 A
d.	4 A
e.	0 A

② $\boxed{I_3 - I_2 = 5ix}$

$I_3 - I_2 - 5ix = 0$

③ $I_3 - I_4 = -Ix$

$I_3 + 1 = -Ix$

③ $I_3 + I_x = -1$

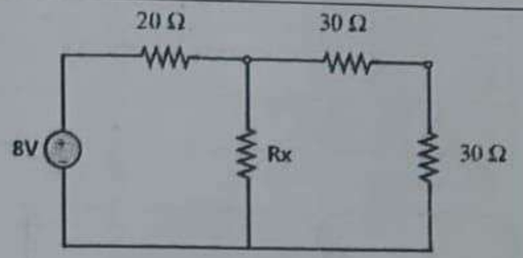
Q16	The current i_x is:
a.	-3.2 A
b.	-0.64 A
c.	3.2 A
d.	6.4 A
e.	-6.4 A

$I_2 = 2.8$

$I_3 = -0.36$

$I = -0.64$

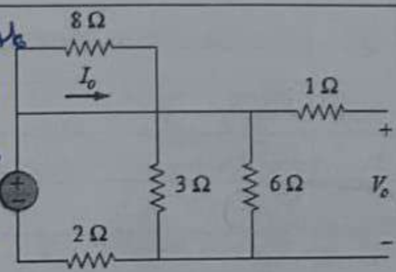
Q1	If you replace R_x in the following circuit by a **short circuit**, the driven current by the source is:
a.	0 A
b.	0.4 A
c.	0.1 A
d.	0.133 A
e.	None of these



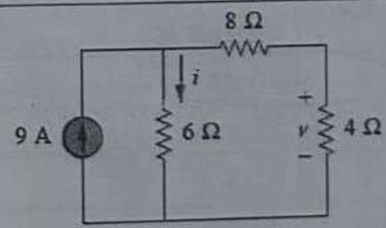
Q2	For the circuit shown, V_o is:
a.	0 V
b.	2 V
c.	~~3 V~~
d.	1 V
e.	4 V

d

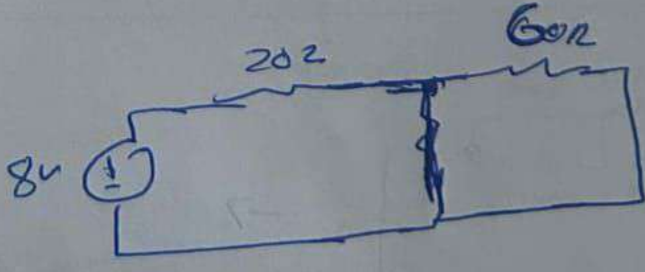
ملاحظة
الاجابة
d صح
وليس C



Q3	For the circuit shown, the current through the 6-Ω resistor I is:
a.	9 A
b.	6 A
c.	1.5 A
d.	5.14 A
e.	3 A



$$\frac{I}{6} = \frac{9(12)}{12+6} = 6$$



$$I = \frac{8}{20} = 0.4A$$

$$I = \frac{4}{4} = 1A$$

apply K.V.L

$v_1 = 5I_x$

$2(5I_x) + v_2 = 4$

$\cancel{10 I_x} + v_2 = 4$

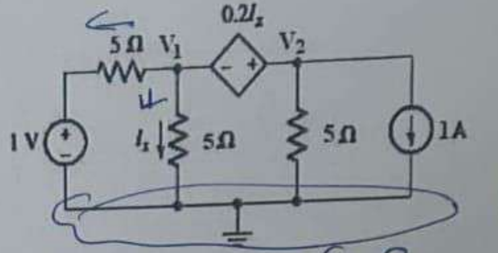
$I_x = \frac{v_1}{5}$

** For the circuit shown, use Nodal Analysis to answer questions (17-20)

$5.2 I_x - v_2 = 0$

$v_1 = 5I_x$

$I_x = \frac{v_1}{5}$



$v_2 - v_1 = 0.2I_x$

$v_2 - 5I_x = 0.2I_x$

ref

$v_2 - v_1 = 0.2I_x$

$v_2 - v_1 = 0.2(\frac{v_1}{5})$

Q17	The nodal voltage V_2 is:
a.	-1.37 V
b.	1 V
c.	0.3 V
d.	-4.22 V
e.	6.75 V

$\frac{v_1 - 1}{5} + \frac{v_1}{5} = 1$

$\Sigma I_{outside} = \Sigma I_{inside}$

$\frac{v_1 - 1}{5} + \frac{v_1}{5} + \frac{v_2}{5} = 1$ | $\times 5$

Q18	The voltage at the reference point is:
a.	-1 V
b.	5 V
c.	-5 V
d.	1 V
e.	0 V

$0.2v_1 - 0.2 + 0.2v_1 + 0.2v_2 = 1$

$0.2v_1 + 0.2v_1 + 0.2v_2 = 1.2$

$0.4v_1 + 0.2v_2 = 1.2$ (1)

Q19	The nodal voltage V_1 is:
a.	-2.632 V
b.	2.632 V
c.	0.2 V
d.	-1.316 V
e.	1 V

$v_2 - v_1 = 0.2(\frac{v_1}{5})$

$v_2 - v_1 = 0.04v_1$

$v_2 - v_1 = 0.2I_x$

$-1.04v_1 + v_2 = 0$ (2)

Q20	The current I_x is:
a.	-3.375 A
b.	1.37 A
c.	3.375 A
d.	-0.2632 A
e.	-0.844 A

$I_x = \frac{v_1}{5}$

$v_1 - 1 + v_1 + v_2 = 5$

$2v_1 + v_2 = 6$ (1)

$v_2 - v_1 = 0.2(\frac{v_1}{5})$

$v_1 = 5I_x$

$0.2v_2 - 0.2v_1 = \frac{v_1}{5}$

$10I_x + v_2 = 4$

$5.2I_x - v_2 = 0$

Best Wishes

$0.2v_2 - 0.2v_1 = 0.2v_1$

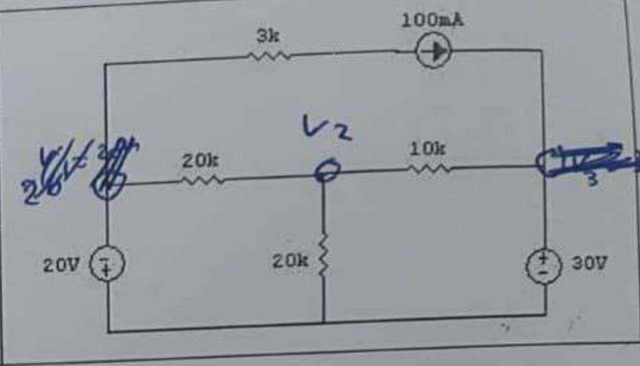
$2I_x$

$\frac{v_1 - 1}{5} + \frac{v_1}{5} + \frac{v_2}{5} = 1$

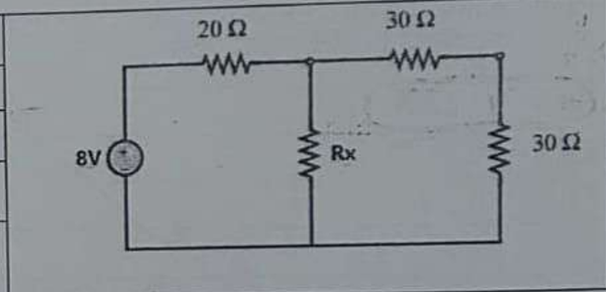
$v_1 + 1 + v_1 + v_2 = 5$

$\cancel{2v_1 + v_2 = 4}$

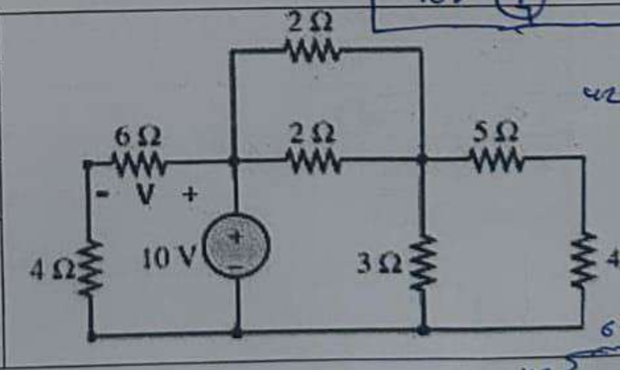
Q10	For the circuit shown, the absorbed power in the 3k ohm resistor
a.	3.333 μW
b.	33.3 mW
c.	900 W
d.	300 W
e.	30 W



Q11	If you replace R_x in the following circuit by **an open circuit**, the driven current by the source is:
a.	0 A
b.	0.1 A
c.	8 A
d.	0.133 A
e.	0.4 A



Q12	For the circuit shown, the voltage across the 6Ω resistor is:
a.	-6 V
b.	6 V
c.	10 V
d.	4 V
e.	-4 V



9+10

$P = I^2 R$

$= 3\times10^3 \times 6.11^2$

$= 30W$

$I = \frac{10}{10} = 1$

$V = IR = 1(6)$

$v_2 + 30 = 0$