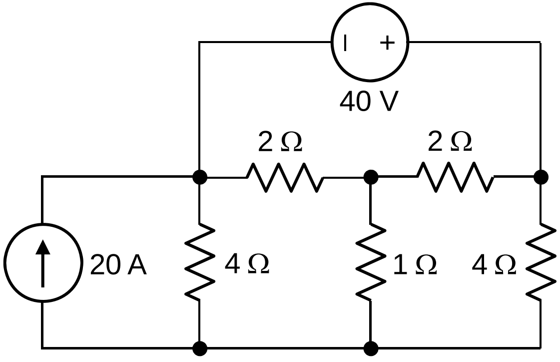
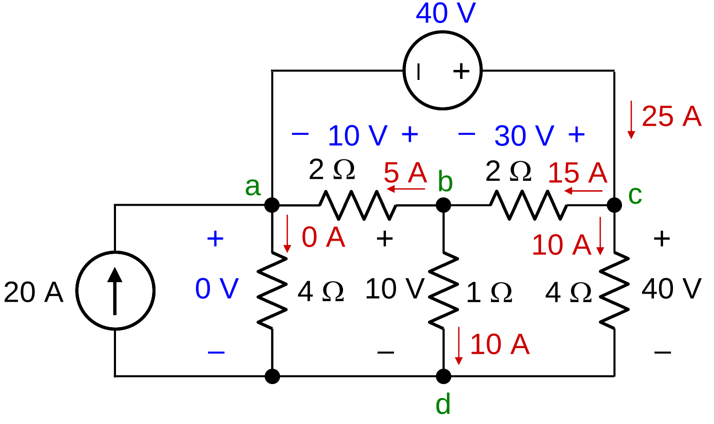
Determine all the currents and voltages in the circuit using superposition and mark them on the circuit diagram.



Solution:



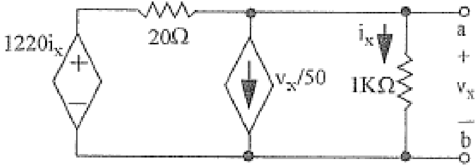


Figure 10

12. Find the Thevenin equivalent of the circuit shown in figure 10.

a) V_{th} = 10V and R_{th} = 1K

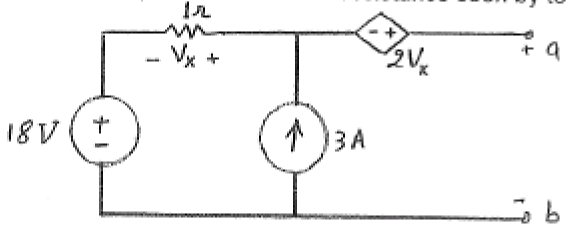
b) V_{th} = 0V and R_{th} = 0.1K

c) V_{th} = 10V and R_{th} = 2K

d) V_{th} = 1V and R_{th} = 1K

e) None of the above

10. For the circuit shown, find the Thevenin resistance seen by terminals ab



A. 4Ω
B. 5Ω
→ C. 3Ω
D. 6Ω
E. None of the above.

2. In the circuit of Figure 1, the Thevenin resistance as seen from terminals ab is:

a. 100/3Ω
b. 100/9Ω
c. 50/9Ω
d. 10Ω
e. None of the above

Refer to figures below

10. In the circuit of Figure 8, the Thevenin equivalent resistance, across terminals a-b, is:

a. 20Ω
b. 5Ω
c. -20Ω
d. 10Ω
e. None of the above

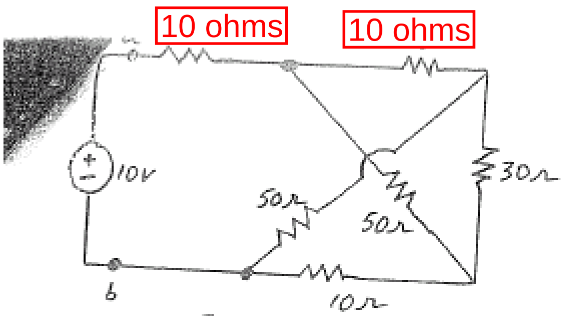


Fig. 1

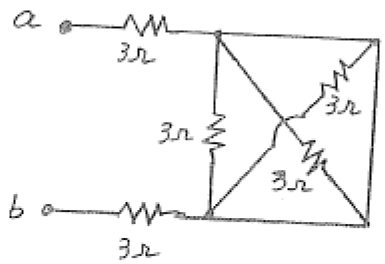


Fig. 2

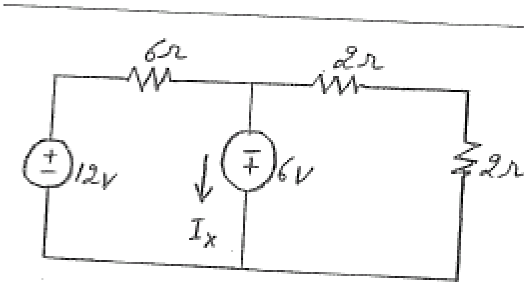


Fig. 3

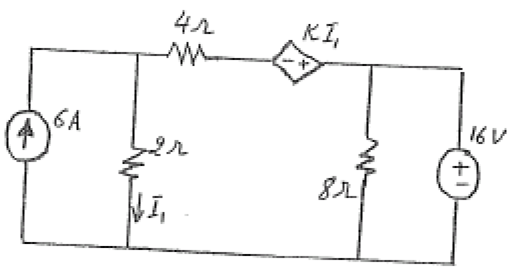


Fig. 4

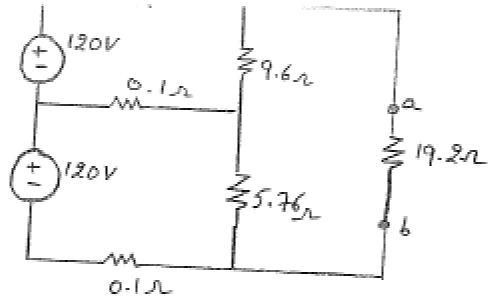


Fig. 5

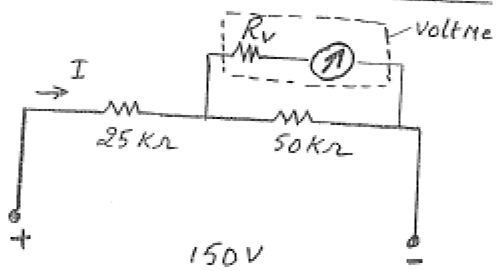


Fig. 6

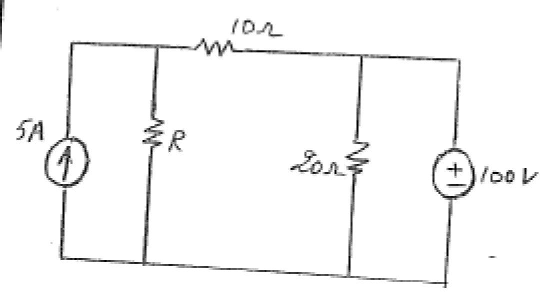


Fig. 7

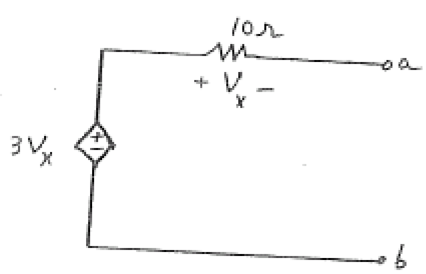
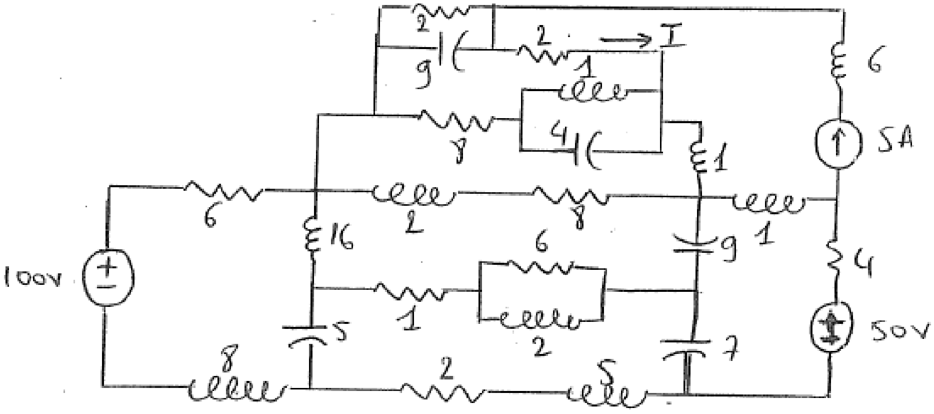


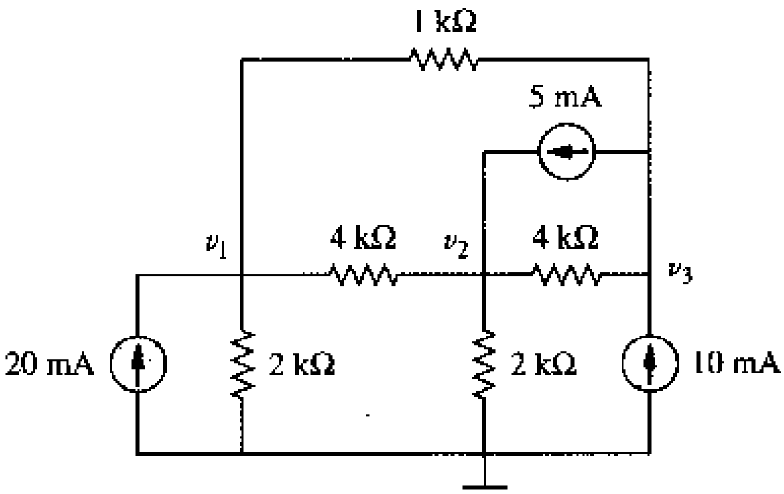
Fig. 8

25.Consider the circuit below, connected for a long time. All resistors are in Ohm, capacitors in Farads and inductors in Henrys. Find the current I.



a)5.357A b)11.25A c)7.5A d)22.5A e)NOA

Problem 1 (10 pts)
Consider the circuit shown below.



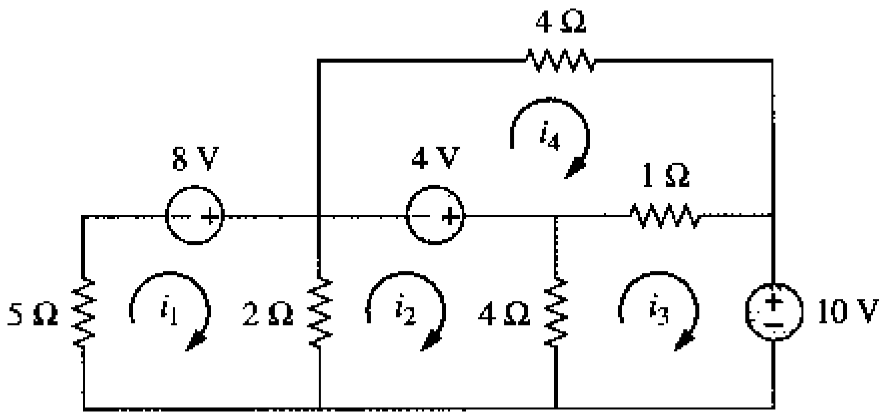
1. We, first, set the current sources 5 mA and 10 mA to zero. Determine the equivalent resistance seen by the 20 mA current source. (5 pts)

$R_1 = (4 + 1)||4 = 20/9$ kΩ; $R_2 = 20/9 + 2 = 38/9$ kΩ, $R_{eq} = 2||(38/9) = 19/14 = 1.36$ kΩ

2. Write the node voltage equations by inspections (**do not solve**) (5 pts)

$1.75V_1$	–	$0.25V_2$	–	V_3	=	20
$-0.25V_1$	+	V_2	–	$0.25V_3$	=	5
$-V_1$	–	$0.25V_2$	+	$1.25V_3$	=	5

Problem 2 (10 pts)
Consider the circuit shown below



1. We, first, set the 4V source and the 10V source to zero. Determine the equivalent resistor seen by the 8V voltage source. (5 pts)

$R_{eq} = 5 + (2||4||4||1) = 5 + 0.5 = 5.5\ \Omega$

2. Write the mesh-current equations. **(do not solve).** (5 pts)

$7I_1$	–	$2I_2$	–	$0I_3$	–	$0I_4$	=	8
$-2I_1$	+	$6I_2$	–	$4I_3$	–	$0I_4$	=	4
$0I_1$	–	$4I_2$	+	$5I_3$	–	I_4	=	-10
$0I_1$	–	$0I_2$	–	I_3	+	$5I_4$	=	-4

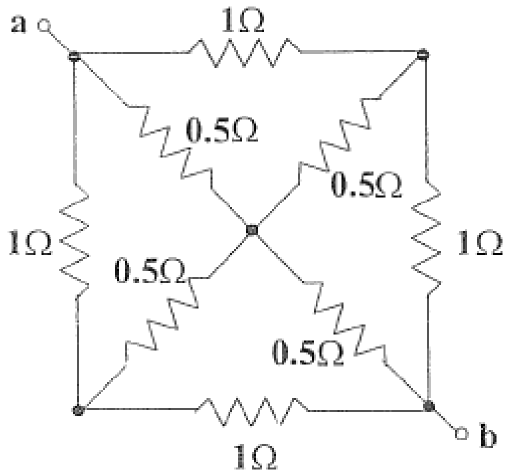
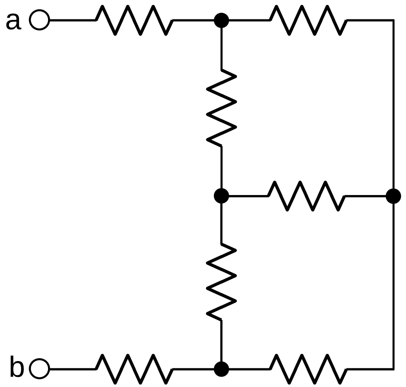


Figure 20

21. Determine the resistance between terminals a b in figure 20.

a) 0.5Ω
b) 0.6Ω
c) 1.5Ω
d) 0.25Ω

1. Determine the equivalent resistance between terminals a and b, given that all resistances are 1 Ω.



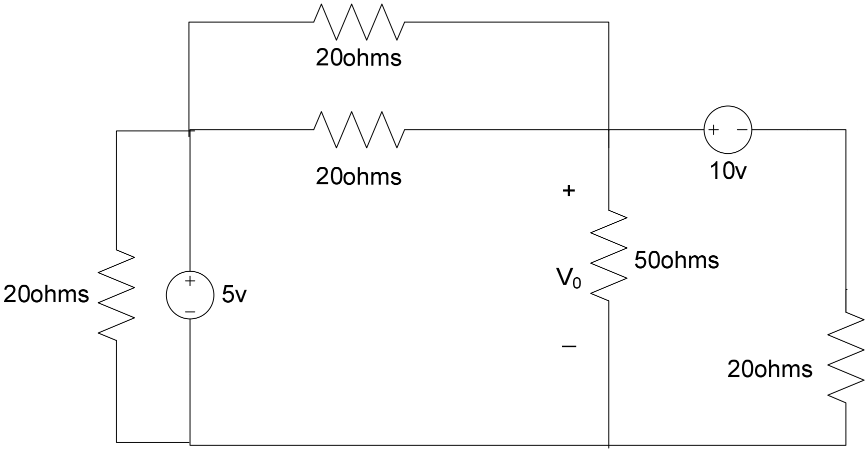
   A. 5 Ω
   B. 4.5 Ω
   C. 4 Ω
   D. 3 Ω
   E. None of the above

Solution: The resistances not connected directly to terminals a and b form a balanced bridge. Hence the resistance across the bridge does not carry any current and can be replaced by an open circuit or a short circuit. If replaced by an open circuit, $R_{eq} = 1 + 2||2 + 1 = 3\ \Omega$.

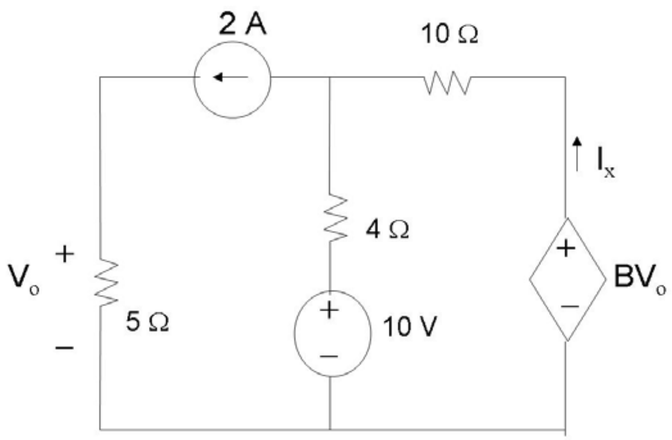
Problem 2

Find the power consumed by the 50 ohm resistor in the circuit shown below

A) P= 0.246 W
B) P= 0.692 W
C) P= 2.358 W
D) P= 5.100 W
E) None of the above



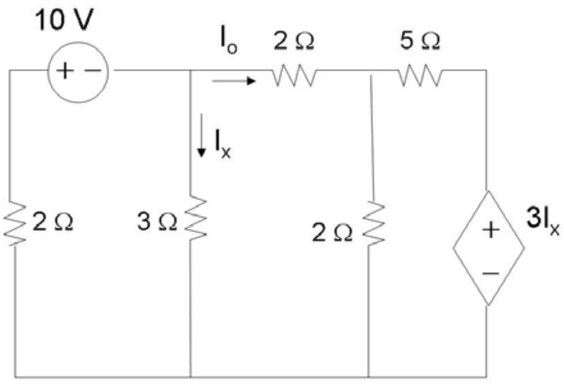
Problem 6



Given the circuit above, determine the current I_x if voltage-controlled current source has B=0.2:

A) 0
B) 0.285
C) 1.285
D) 0.5
E) None of the above

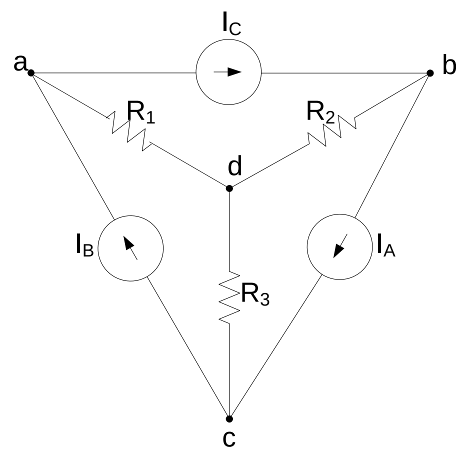
Problem 11



What is I_0?

A) 1 A
→ B) -1 A
C) 2 A
D) -2 A
E) None of the above

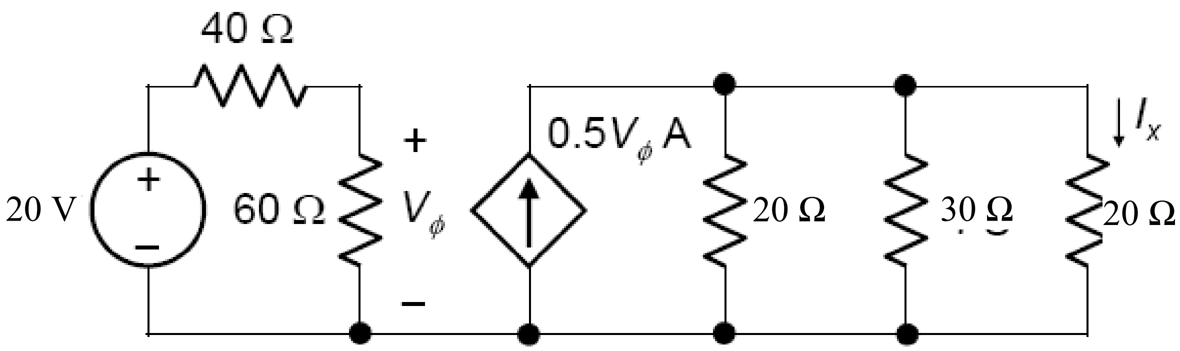
Problem 5



The following values are given:
$I_A = 1$ mA, $I_B = 2$ mA, $I_C = 4$ mA, $R_1 = R_2 = R_3 = 1$ kΩ,
What is the value of V_{bc}?

→ A) 4 V
B) -2 V
C) 1 V
D) 5 V
E) None of the above

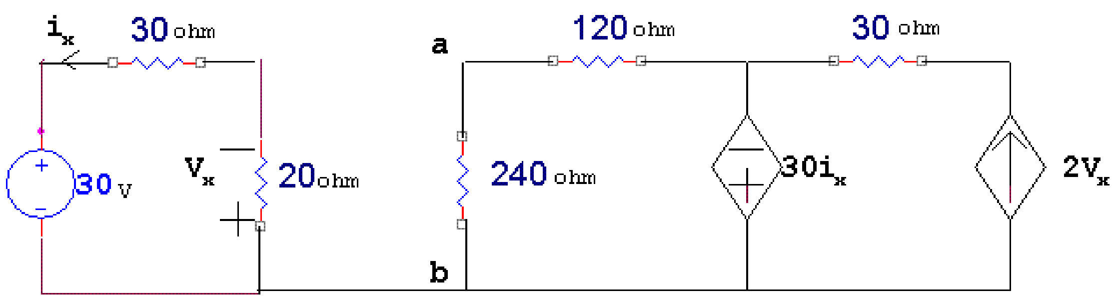
Problem 9



Find I_x.

A) 4.2 A
B) 3.5 A
→ C) 2.25 A
D) 4.75 A
E) None of the above

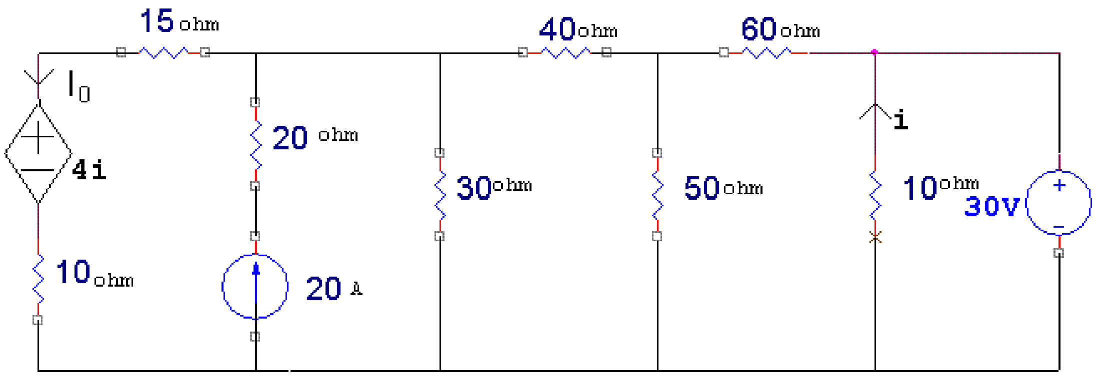
Problem 10



Find the Thevenin equivalent across terminals a and b.

A) $R_{TH} = 40\Omega$, $V_{TH} = 6.67$ V
B) $R_{TH} = 40\Omega$, $V_{TH} = -6.67$ V
→ C) $R_{TH} = 80\Omega$, $V_{TH} = 12$ V
D) $R_{TH} = 80\Omega$, $V_{TH} = -12$ V
E) None of the above

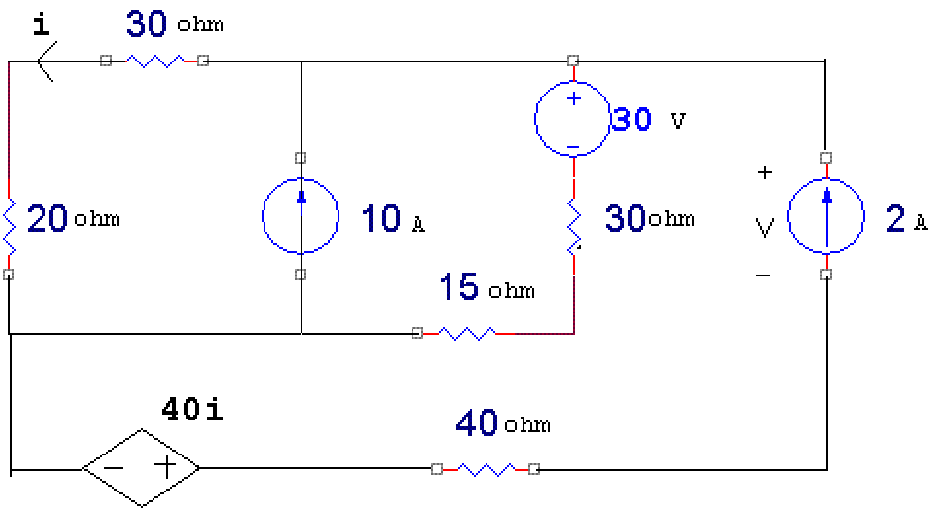
Problem 11



Find the current, I_0, flowing through the dependant source.

A) 9.4A
B) 14A
C) -3A
D) -12A
E) None of the above.

Problem 12



Find the voltage, V, across the 2A source.

A) 400 V
B) 140 V
C) 6 V
D) -300 V
E) None of the above

P3.1.25 Determine V_O in Fig. P3.1.25 using node-voltage analysis.

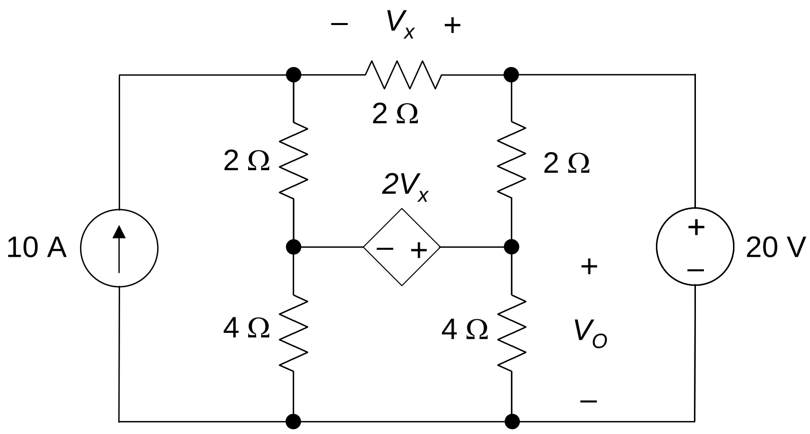
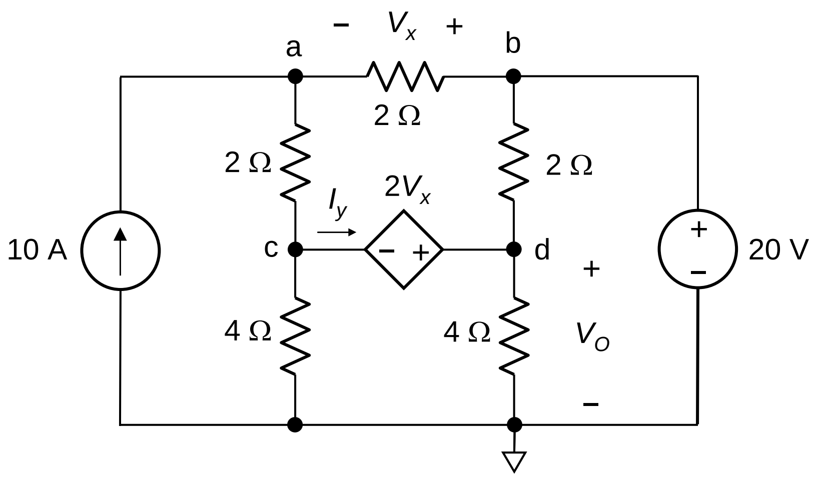


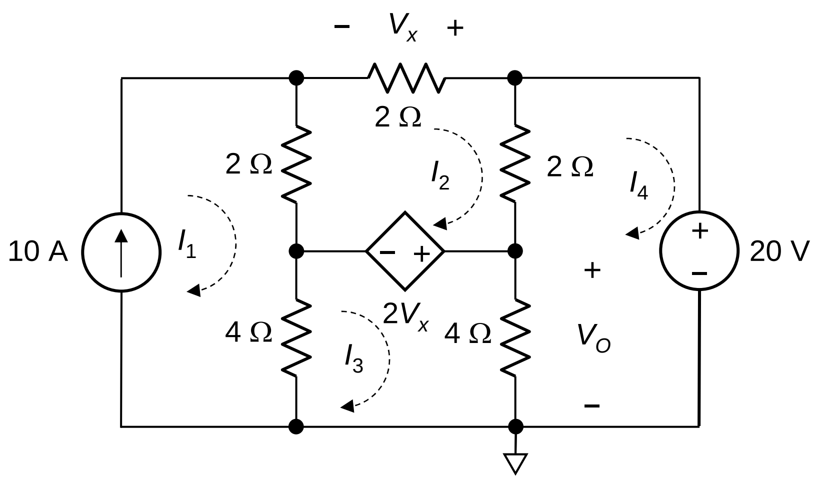
Figure P3.1.25



Solution: The node-voltage equation for node a is: $V_a - 0.5V_b - 0.5V_c = 10$; substituting $V_b = 20$ V: $V_a - 0.5V_c = 20$. For node c: $-0.5V_a + 0.75V_c = -I_y$; for node d: $-0.5V_b + 0.75V_d = I_y$; adding and substituting for V_b: $-0.5V_a + 0.75V_c + 0.75V_d = 10$. For the dependent source: $V_d - V_c = 2V_x = 2V_b - 2V_a$, or $2V_a - V_c + V_d = 40$. Solving, $V_a = 40$ V, $V_c = 40$ V, $V_d = V_O = 0$.

P3.1.26 Determine V_O in Fig. P3.1.25 using mesh-current analysis.

Solution For mesh 2: $-2I_1 + 6I_2 - 2I_4 = -2V_x$; substituting $I_1 = 10$ and $V_x = -2I_2$: $I_2 - I_4 = 10$. For mesh 3: $-4I_1 + 8I_3 - 4I_4 = 2V_x$; $I_2 + 2I_3 - I_4 = 10$. For mesh 4: $-2I_2 - 4I_3 + 6I_4 = -20$, or $-I_2 - 2I_3 + 3I_4 = -10$. Solving, $I_2 = 10$ A, $I_3 = 0$, and $I_4 = 0$, which gives $V_O = 0$.



P3.2.12 Determine V_O in Fig. P3.1.19 using superposition and calculate the power dissipated in the 5 Ω resistor.

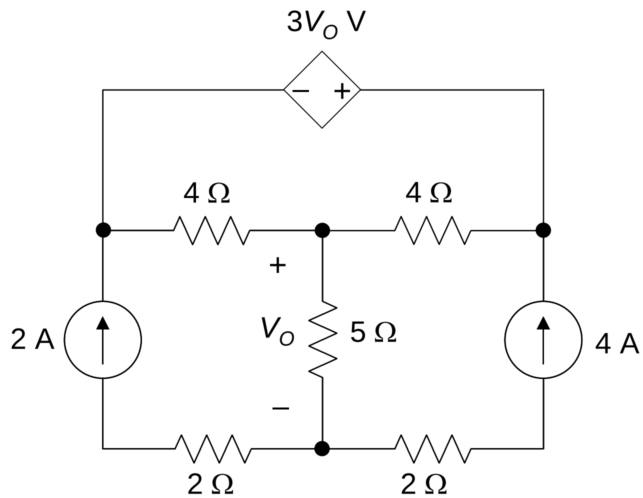
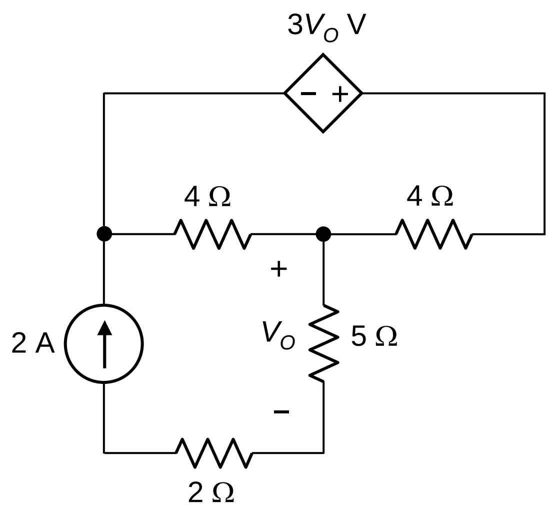


Figure P3.1.19

Solution: With the 2 A source acting alone, the circuit becomes as shown. The source current flows through the 5 Ω resistor, so that V_{O1} = 10 V. Similarly, when the 4 A source is applied alone, V_{O2} = 20 V. From superposition, V_O = V_{O1} + V_{O2} = 30 V. The dependent source does not contribute to V_O.



Power dissipated in the 5 Ω resistor is

$$\frac{(30)^2}{5} = 180\text{ W}.$$

P3.2.13 Determine I_O in Fig. P3.1.21 using superposition and calculate the power dissipated in the 5 S resistor.

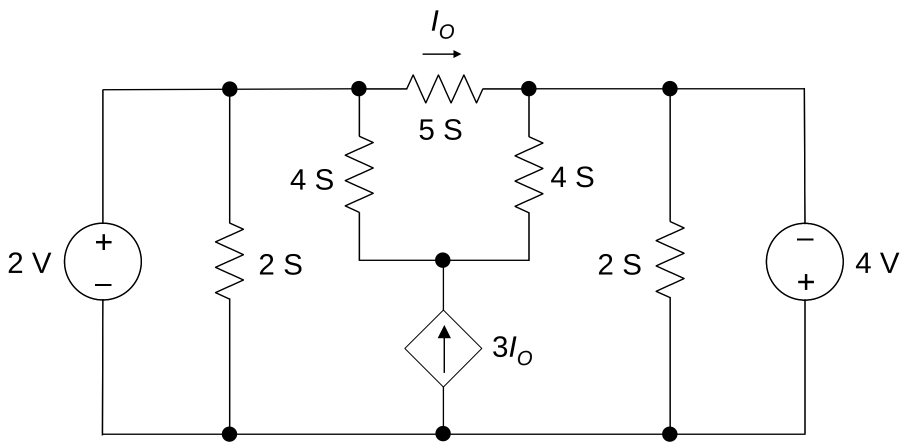
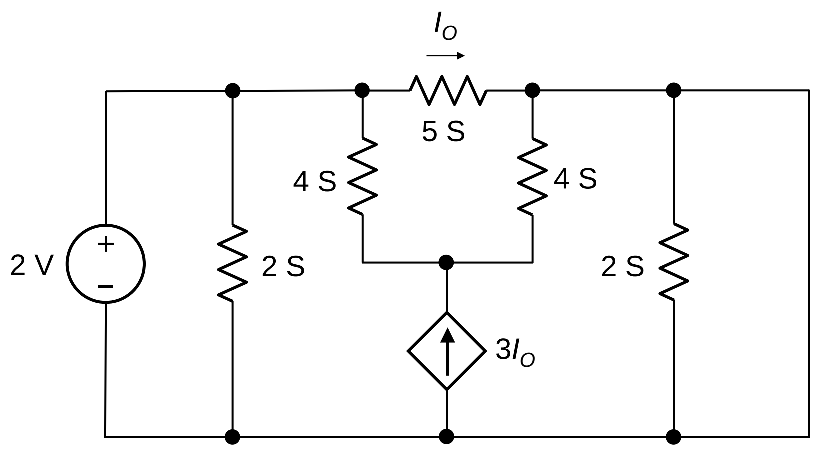


Figure P3.1.21

Solution: With the 2 V source acting alone, and the 4 V source replaced by a short circuit, the circuit becomes as shown. The source voltage is applied across the 5 S resistor, so that I_{O1} = 10 A. Similarly,



when the 4 V source is applied alone, I_{O2} = 20 A. From superposition, $I_O = I_{O1} + I_{O2}$ = 30 A. The dependent source does not contribute to I_O. Power dissipated in the 5 S resistor is

$$\frac{(30)^2}{5} = 180\text{ W}.$$

P4.1.8 Derive TEC between terminals ab in Fig. P4.1.8.

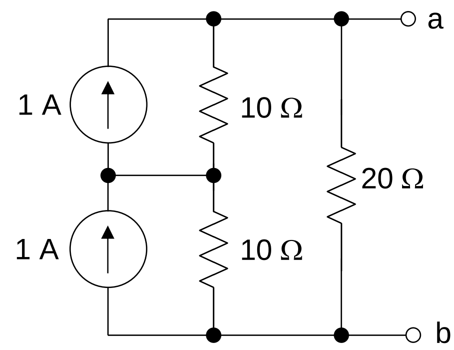
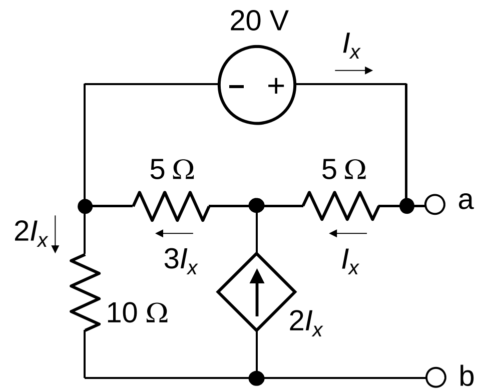


Figure P4.1.8

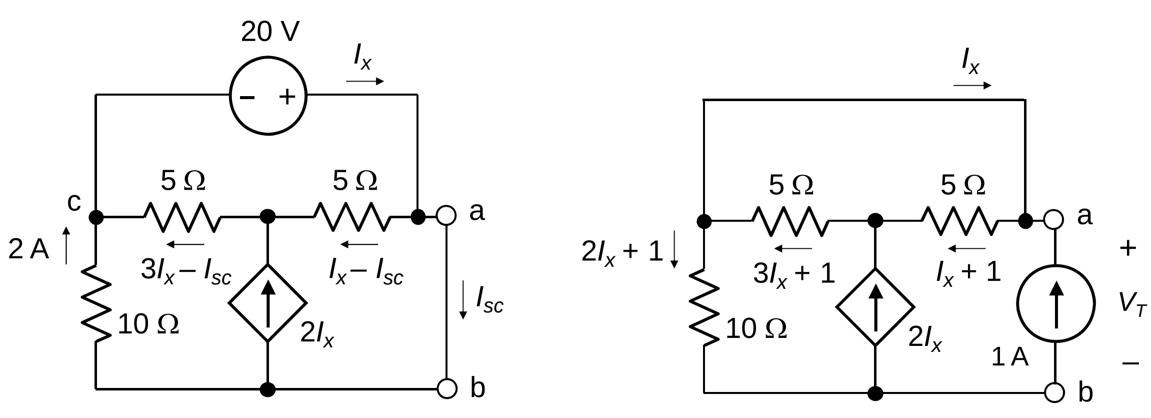
Solution: Let us first remove the 20 Ω resistor and reapply it later. On open circuit, each 1 A source produces a 10 V drop across the resistor in parallel with it. Hence V_{oc1} = 20 V. On short circuit, I_{sc} = 1 A, so that R_{Th1} = 20 Ω. When the 20 Ω resistor is added at terminals ab, $V_{Th} = 20\times(20/40) = 10$ V and $R_{Th} = (20||20) = 10$ Ω

P4.1.9 Derive TEC between terminals ab in Fig. P4.1.9.



Solution: On open circuit, KVL around the upper mesh gives $20I_x = 20$, or $I_x = 1$ A. It follows that $V_{Th} = V_{oc} = 20 + 20I_x = 40$ V.

On short circuit, the current in the 10 Ω resistor is 2 A. KVL around the upper mesh gives: $20 = 5(I_x - I_{sc}) + 5(3I_x - I_{sc})$, or $2I_x - I_{sc} = 2$; from KCL at node c: $3I_x - I_{sc} + 2 = I_x$, or $2I_x - I_{sc} = -2$. This means that I_x and I_{sc} are indeterminate. This suggests that $R_{Th} = 0$, which would make I_{sc} indeterminate. To verify this, we apply a test source of 1 A, with the voltage source set to zero. Then, $4I_x + 2 = 0$, so that $I_x = -0.5$ A and $V_T = 2(-0.5) + 1 = 0$. Hence $R_{Th} = 0$.



P4.1.10 Derive NEC between the short-circuited terminals ab in Fig. P2.1.4.

Solution: If a test voltage is applied, KCL at node a gives $I_\phi = I_T + 3$. From KCL at node c, $I_T + 3 + 10 = 5$, or $I_T = -8$ A, irrespective of V_T. It follows that $I_N = 8$ A. Since I_T is independent of V_T, it means that there is no resistance in parallel with the current source I_N.

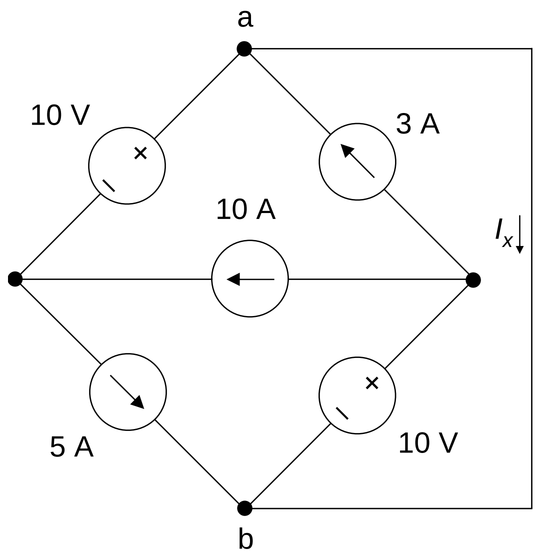
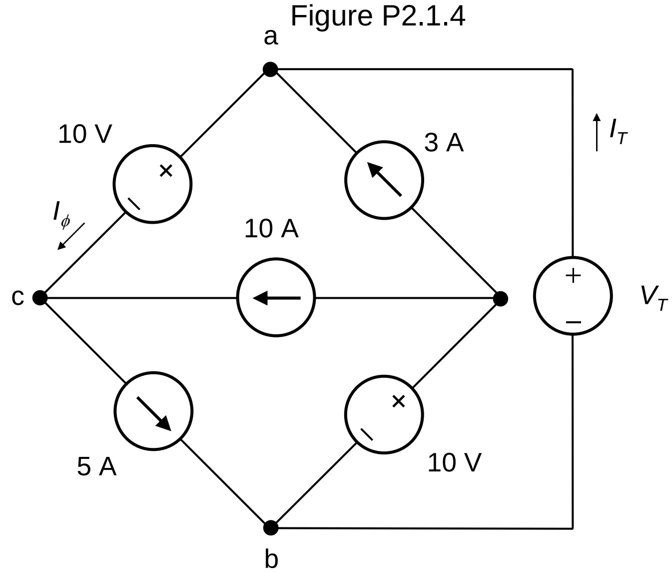


Figure P2.1.4



P4.1.11 Determine V_O in Fig. P3.1.7 using TEC.

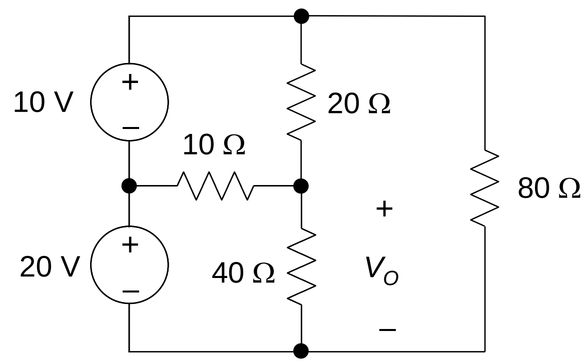
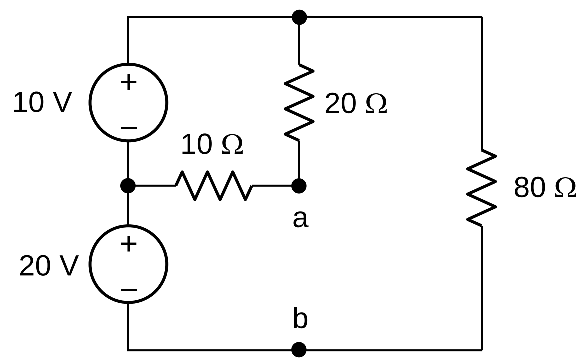


Figure P3.1.7

Solution: Open-circuit voltage: When only the 10 V source is applied, V_{Th1} = $\frac{10}{30}\times 10=\frac{10}{3}$ V. When only the 20 V source is applied V_{Th2} = 20 V. Hence, V_{Th} = 70/3 V. With both sources set to zero, R_{Th} = 10||20 = 20/3 Ω. It follows that V_O = $\frac{40}{40+20/3}\times\frac{70}{3}=20\,\text{V}$.



P4.1.12 Determine I_O in Fig. P3.1.9 using NEC.

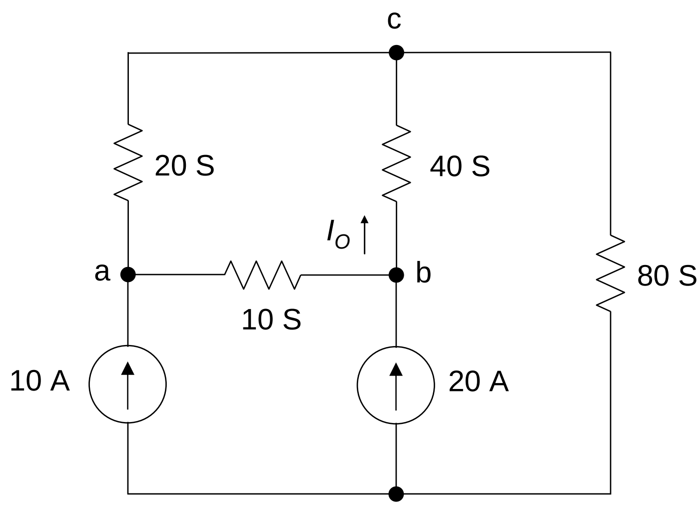
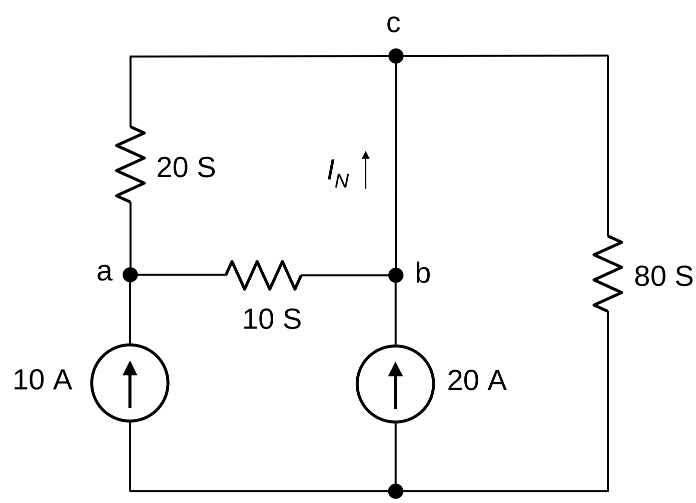


Figure P3.1.9

Solution: With the 10 A source acting alone, $I_{N1} = \frac{10}{30} \times 10 = \frac{10}{3}$ A. With the 20 A source acting alone, I_{N2} = 20 A. Hence, I_N = 70/3 A.

The conductance between terminals bc is $\frac{20 \times 10}{20 + 10} = \frac{20}{3}$ S. It follows from NEC that $I_O = \frac{40}{40 + 20/3} \times \frac{70}{3} = 20$ A.



P4.1.15 Determine V_O in Fig. P3.1.15 using TEC.

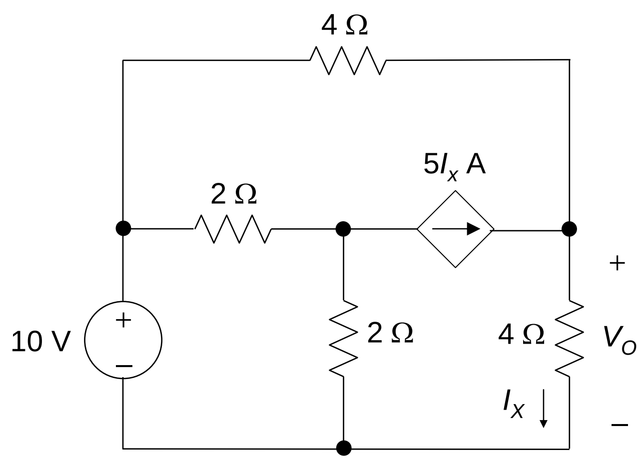
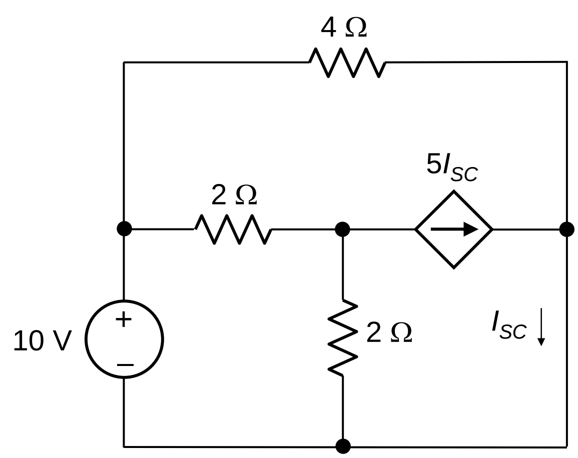


Figure P3.1.15

Solution: On open circuit, I_x = 0, and the dependent source becomes an open circuit. It follows that V_{Th} = 10 V. On short circuit, the circuit becomes as shown, where I_x = I_{SC} and the dependent source becomes 5I_{SC}. It follows from KCL that: $I_{SC} = 5I_{SC} + \frac{10}{4}$, which gives $I_{SC} = -\frac{5}{8}$ A, and $R_{SC} = -16\,\Omega$. Hence $V_O = \frac{4}{4-16} \times 10 = -\frac{10}{3}$ V.



P4.1.16 Determine I_O in Fig. P3.1.17 using NEC.

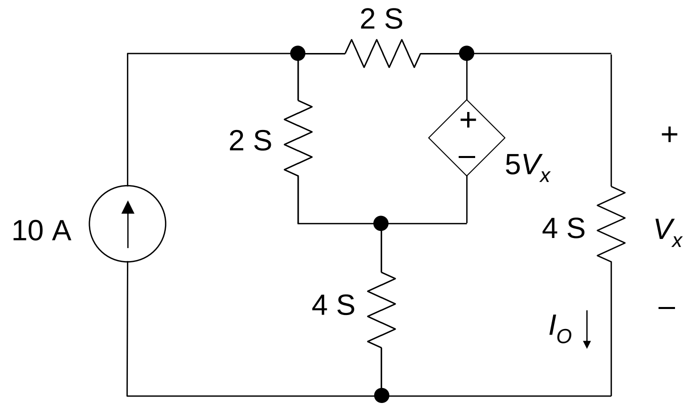
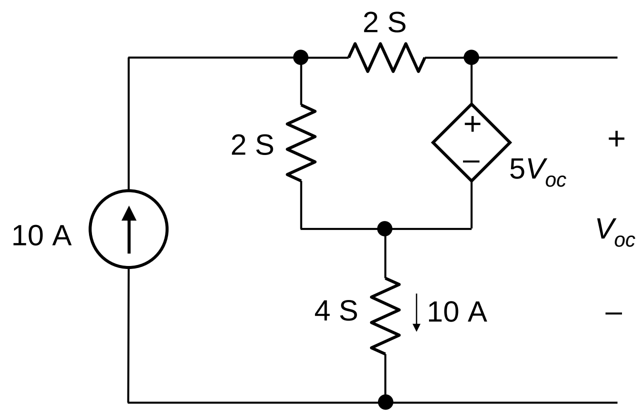


Figure P3.1.17

Solution: On open circuit, 10 A flows through the 4 S resistor, so that $V_{oc} = 5V_{oc} + \frac{10}{4}$, which gives $V_{oc} = -\frac{5}{8}$ A. On short circuit, $V_x = 0$ and the dependent source is zero, so that $I_N = 10$ A. This makes $G_N = -16$ S. It follows that $I_O = \frac{4}{4-16} \times 10 = -\frac{10}{3}$ A.



P4.1.17 Determine V_O in Fig. P3.1.19 using NEC.

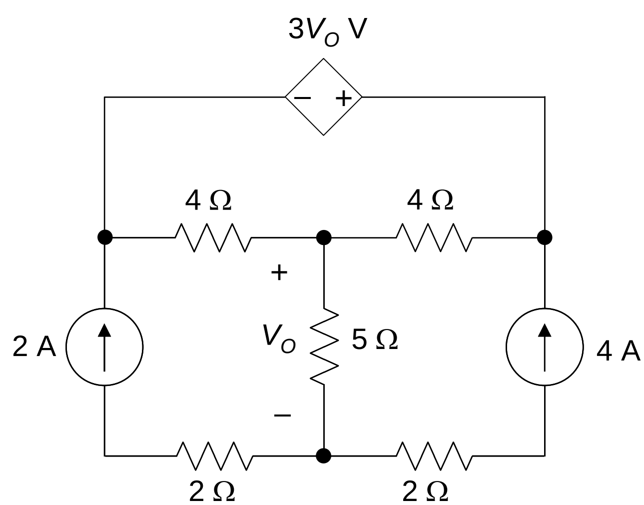


Figure P3.1.19

Solution: If the 5 Ω resistor is replaced by an open circuit, the circuit is invalid, as two unequal current sources will be connected in series through the 2 Ω resistors, and $V_O \to \infty$. If a test source is applied in place of the 5 Ω resistor and the current sources replaced by open circuits, the resistance seen by the source is infinite. If the 5 Ω resistor is replaced by a short circuit, $I_{SC} = 6$ A. It follows that the circuit does not possess a TEC between the specified terminals, only an NEC consisting of an ideal current source of 6 A. This gives $V_O = 30$ V.

P4.1.18 Determine I_O in Fig. P3.1.21 using TEC.

Solution: If the 5 S resistor is replaced by a short circuit, the circuit is invalid, as two unequal voltage sources will be connected in series, and $I_O \to \infty$. If a test source is applied in place of the 5 S resistor and the voltage sources replaced by short circuits, the resistance seen by the source is zero. If the 5 S resistor is replaced by an open circuit, V_{Th} = 6 V. It follows that the circuit does not possess an NEC between the specified terminals, only a TEC consisting of an ideal voltage source of 6 V. This gives I_O = 30 A.

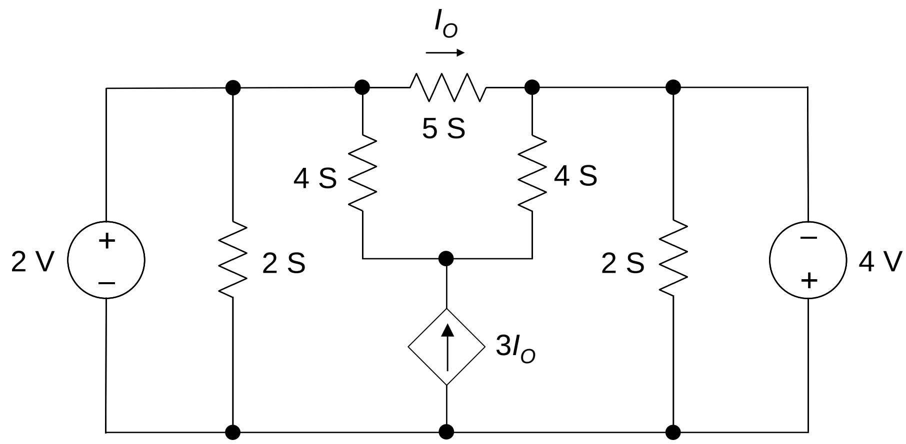


Figure P3.1.21

P4.1.19 Determine I_O in Fig. P3.1.23 using NEC.

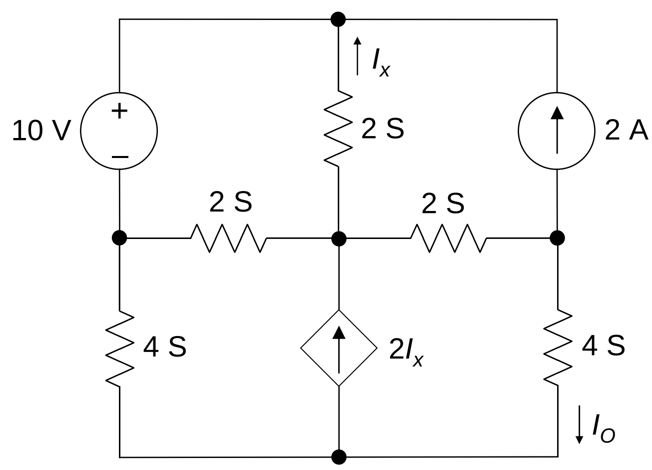
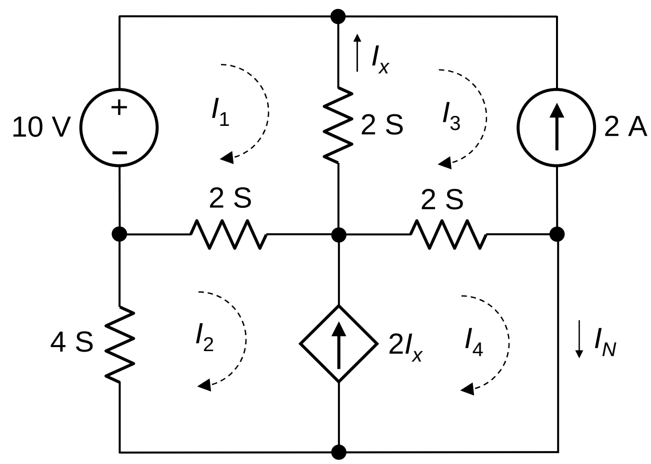
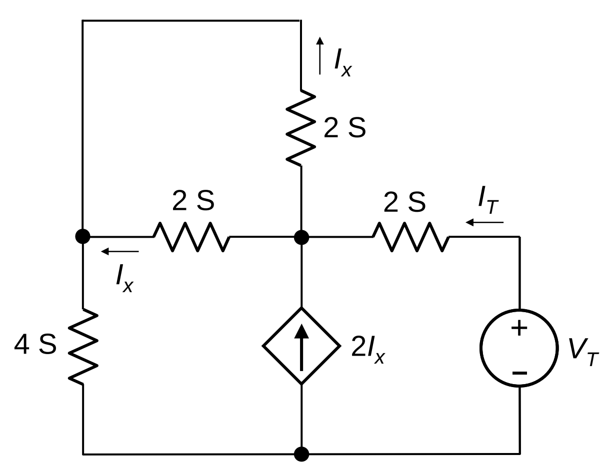


Figure P3.1.23

Solution: With the 4 S resistor replaced by a short circuit, I_O can be obtained from mesh-current analysis. The mesh current equations are the same as those for P3.1.24 but with a coefficient of 0.5 for I_4 in the equation for mesh 4. The equations are: $I_1 - 0.5I_2 = 9$; $-0.5I_1 + 0.75I_2 + 0.5I_4 = -1$; and $2I_1 - I_2 + I_4 = -4$. Solving, $I_4 = I_O = -22$ A.



If a test source is substituted for the 4 S resistor, with the independent source set to zero, it is seen from KCL at the middle node that $I_T = 0$, which means that the source resistance is infinite. The circuit does not possess a TEC between the specified terminals, only an NEC.



P4.1.20 Determine V_O in Fig. P3.1.25 using TEC.

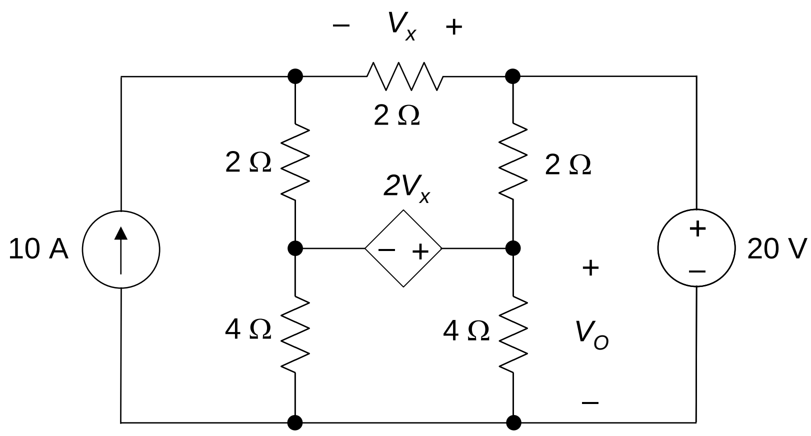
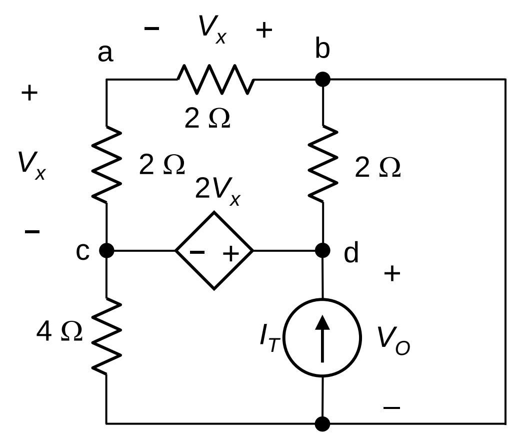
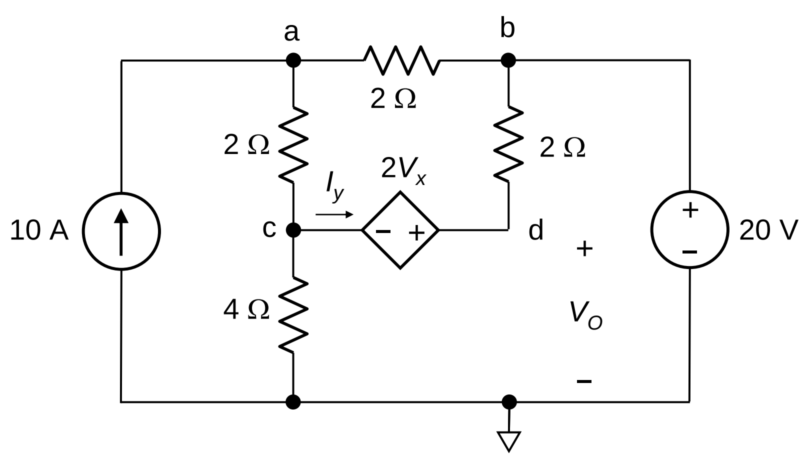


Figure P3.1.25



Solution: If a current source is applied at node d, with the independent sources set to zero, it is seen that $V_{ac} = V_x$, so that $V_{bd} = 0$ and $V_O = 0$. In other words the source sees a short circuit and $R_{src} = 0$. If the resistor between node d and the reference node is replaced by an open circuit, the node-voltage equation at node a is: $V_a - 0.5V_c = 20$, and the node voltage equation at node c is: $-0.5V_a + 0.75V_c = -I_y$, where $I_y =$ $0.5(V_c + 2V_x - 20) =$ $0.5V_c + V_a - 30$. Substituting for I_y: $0.25V_a + V_c = 30$. Solving, gives $V_a = V_c = 40$ V. Hence, $V_x = 20$ V and $V_d = 0$. In other words, TEC and NEC are just short circuits,



1. Determine V_O assuming I_{SRC} = 0.25 A.

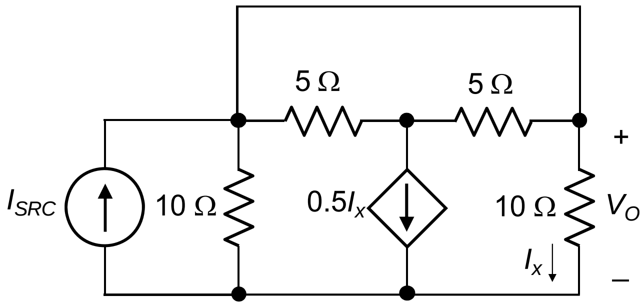
   A. 4 V

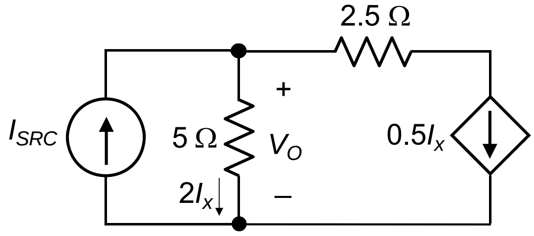
   B. 1 V

   C. 5 V

   D. 2 V

   E. 3 V





Solution: The two 5 Ω resistances can be combined in parallel to give a 2.5 Ω resistance, and the two 10 Ω resistances can be combined in parallel to give a 5 Ω resistance carrying a current of $2I_x$, as shown. It follows that $I_{SRC} - 2I_x = 0.5I_x$, or $I_x = \frac{I_{SRC}}{2.5}$ and $V_O = 10I_x$, so that $V_O = 4I_{SRC}$.

2. Determine I_{SRC} assuming V_{SRC} = 2 V and all resistances are 2 Ω.

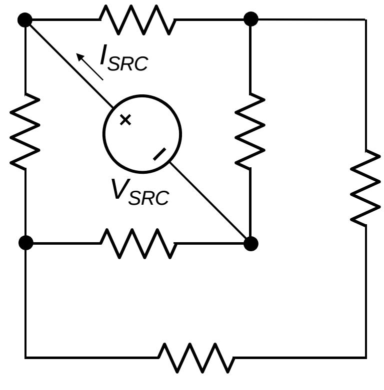
   A. 1.5 A

   B. 3 A

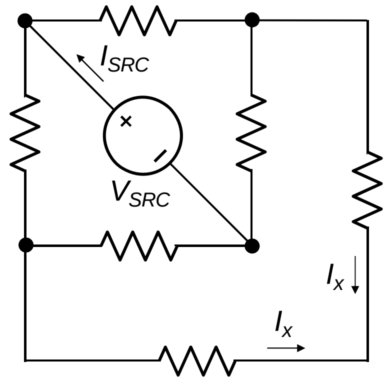
   C. 2.5 A

   D. 2 A

   E. 1 A

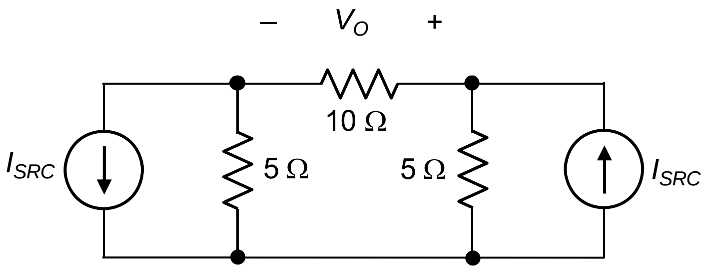


Solution: From symmetry the two currents I_x are equal and sum to zero. Hence, I_x = 0 and the two resistors can be removed. The equivalent resistance seen by the source is (2 + 2)||(2 + 2) = 2 Ω. It follows that $I_{SRC} = V_{SRC}/2$.

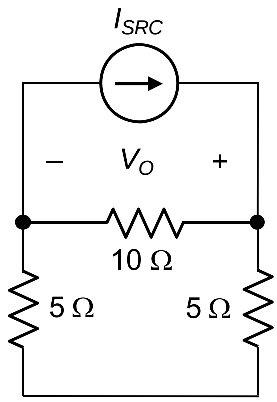


3. Determine V_O assuming I_{SRC} = 1 A.

   A. 7.5 V
   B. 12.5 V
   C. 5 V
   D. 15 V
   E. 10 V

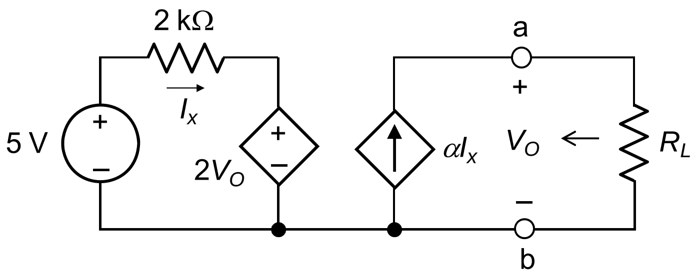


Solution: The two current sources are equivalent to a current source I_{SRC} connected as shown, since KCL is the same at the two nodes. The resistance seen by the source is 10||(5 + 5) = 5 Ω. Hence, $V_O = 5I_{SRC}$.



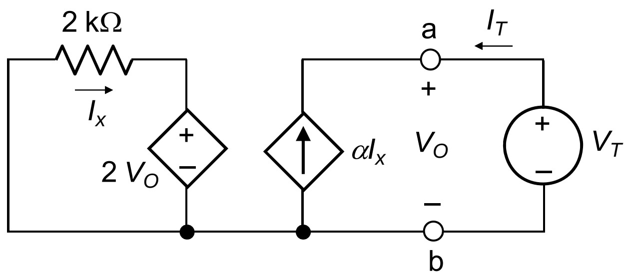
4. Determine Thevenin's resistance looking into terminals ab, assuming α = 10.

   A. 50 Ω
   B. 25 Ω
   C. 100 Ω
   D. 200 Ω
   E. 20 Ω

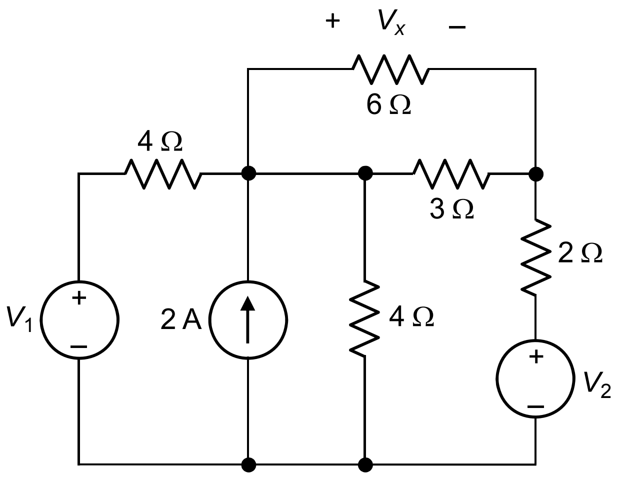


Solution: When a test source V_T is applied at terminals ab, with the independent voltage source set to zero, it follows from the circuit that:

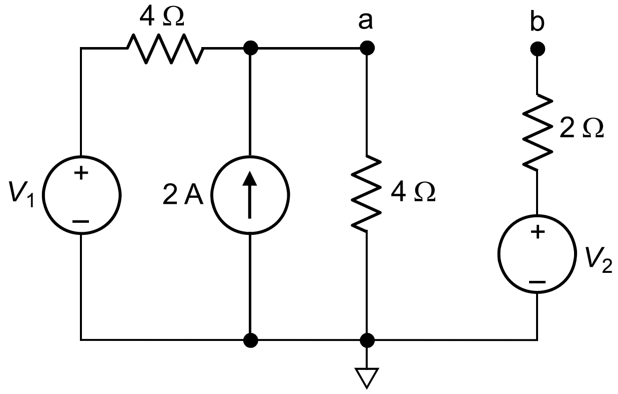
$I_x = -\frac{2V_O}{2} = -V_O = -V_T$ mA. $I_T = -\alpha I_x = \alpha V_T$ mA. Hence, $\frac{V_T}{I_T} = \frac{1}{\alpha}\text{k}\Omega \equiv \frac{1000}{\alpha}\Omega$.



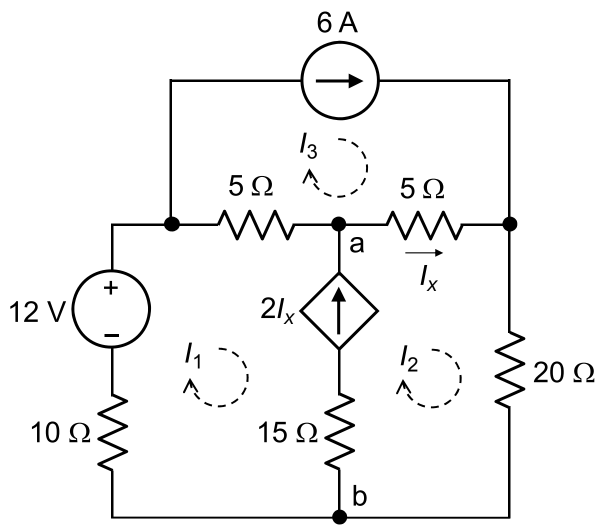
5. Determine V_2 so that $V_x = 0$, assuming $V_1 = 4$ V.
   A. 8 V
   B. 6 V
   C. 6.5 V
   D. 7.5 V
   E. 7 V



Solution: The 6 Ω and 3 Ω resistors do not carry any current. They can removed from the circuit, with nodes a and b being at the same voltage. V_1 can be transformed to a current source $V_1/4$ A in parallel with a 4 Ω resistor. The total current is $(0.25V_1 + 2)$ A in parallel with 2 Ω. V_2 is the voltage of node a, which gives: $V_2 = 2(0.25V_1 + 2) = (0.5V_1 + 4)$ V.



6. Derive the mesh current equations in terms of I_1, I_2, and I_3. DO NOT SOLVE THE EQUATIONS



Solution: Considering the voltage drop V_{ab} as a unit, the equation for mesh 1 is:

$(10 + 5)I_1 - 5I_3 = 12 - V_{ab}$

The mesh-current equation for mesh 2 is:

$(20 + 5)I_2 - 5I_3 = V_{ab}$

Adding these two equations:

$15I_1 + 25I_2 - 10I_3 = 12$

The remaining equations are:

$I_3 = 6$, and

$I_2 - I_1 = 2I_x = 2(I_2 - I_3)$, or

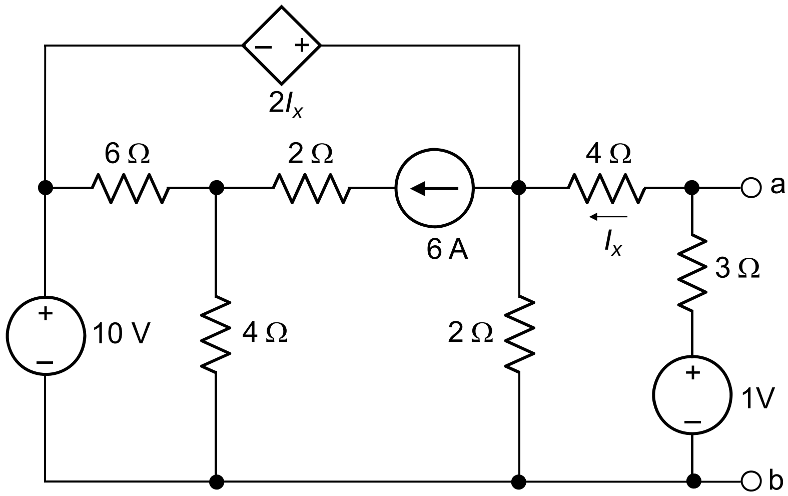
$I_1 + I_2 - 2I_3 = 0$

Note that if the 15 Ω resistor is denoted by R and the conventional mesh-current procedure is applied, the term in R cancels out. Thus, for mesh 1:

$(10 + 5 + R)I_1 - RI_2 - 5I_3 = 12 - V_x$, where V_x is the voltage drop across dependent current source in the direction of I_1. For mesh 2, $-RI_1 + (20 + 5 + R)I_2 - 5I_3 = V_x$. Adding these two equations gives the same equation as before.

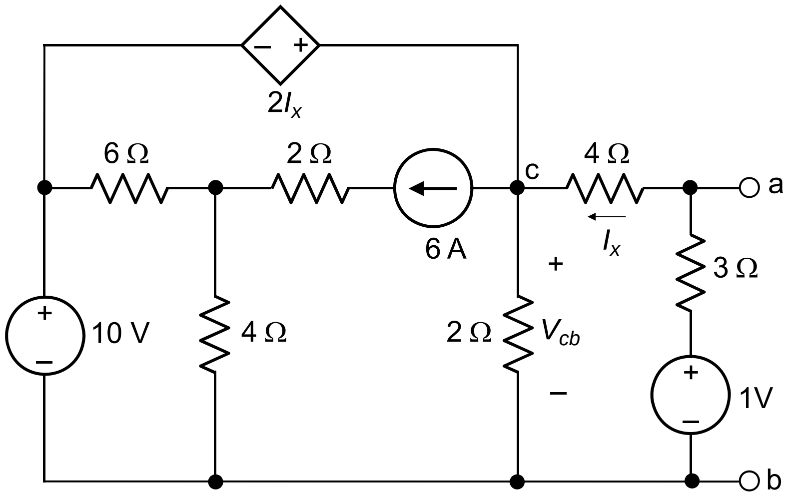
If these equations are solved, $I_1 = 22.8$ A, $I_2 = -10.8$ A, $I_x = -16.8$ A, $V_x = -804$ V.

7. Determine Thevenin's equivalent circuit seen between terminals a and b

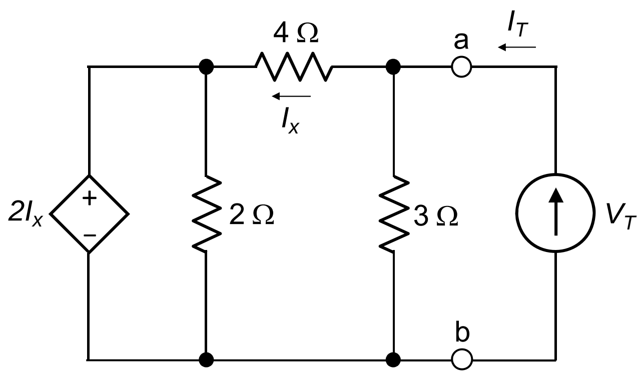


Solution:

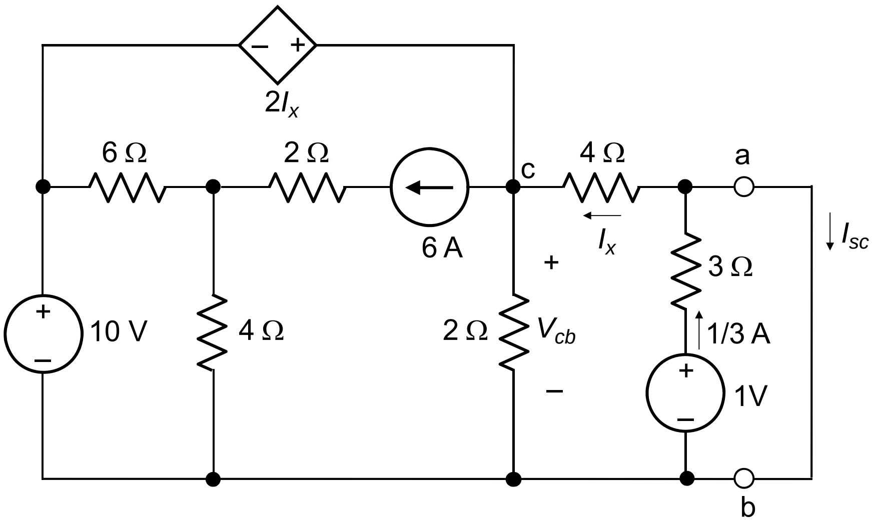
Method 1: Leave the circuit as it is. Considering the mesh on the RHS, $1 = 3I_x + 4I_x + V_{cb}$, where $V_{cb} = 10 + 2I_x$. Substituting for V_{cb} gives $I_x = -1$ A, so that $V_{Th} = 4$ V.



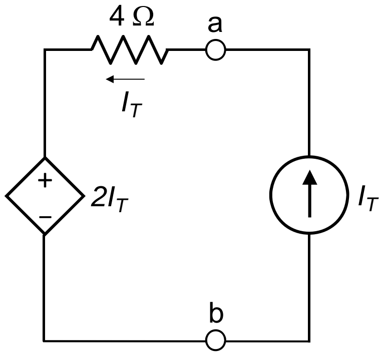
Applying a test source with the independent sources set to zero, the branch containing the 6 A source is open circuited. The 6 Ω and 4 Ω resistors are in parallel with one terminal at node b and the other terminal connected to an open circuit. They do not carry any current and can be removed. The circuit reduces to that shown. $V_T = 4I_x + 2I_x = 6I_x$, and $I_T = I_x + V_T/3$. Substituting for I_x gives $V_T/I_T = R_{Th} = 2\ \Omega$.



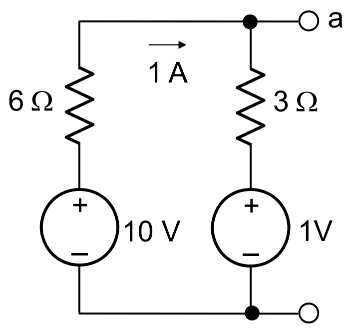
If terminals ab are short circuited, KVL around the outermost loop gives: $10 + 2I_x + 4I_x = 0$, so that $I_x = -5/3$ A; $I_{sc} = -I_x + 1/3 = 2$ A. It follows that $R_{Th} = 4/2 = 2\ \Omega$.



Method 2: If the branch consisting of the 1 V source in series with 3 Ω is removed, $I_x = 0$, the dependent source becomes a short circuit, and the open-circuit voltage between terminals a and b is the same as that of the 10 V source. Hence $V_{Th1} = 10$ V.



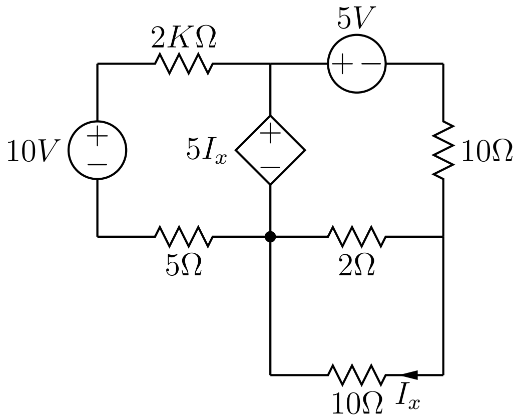
If a test current source I_T is applied between terminals a and b, with the independent sources set to zero, as before, and the 2 Ω resistor removed because it is in parallel with the $2I_x$ ideal voltage source and is redundant as far as V_{ab} is concerned, the circuit reduces to that shown. The $2I_T$ CCVS is equivalent to a 2 Ω resistor, which in series with the 4 Ω resistor gives $R_{Th1} = 6\ \Omega$.



When the branch between terminals a and b is reintroduced, the circuit becomes as shown. With terminals a and b open circuited, the current in the circuit is 1 A in the direction shown and $V_{ab} = 4$ V. If the voltage sources are set to zero, the resistance seen between terminals ab is $(6||3) = 2\ \Omega$. Hence, $V_{Th} = 4$ V and $R_{Th} = 2\ \Omega$.

Problem 3

Find I_x.



A) 230.8A

B) 76.92A

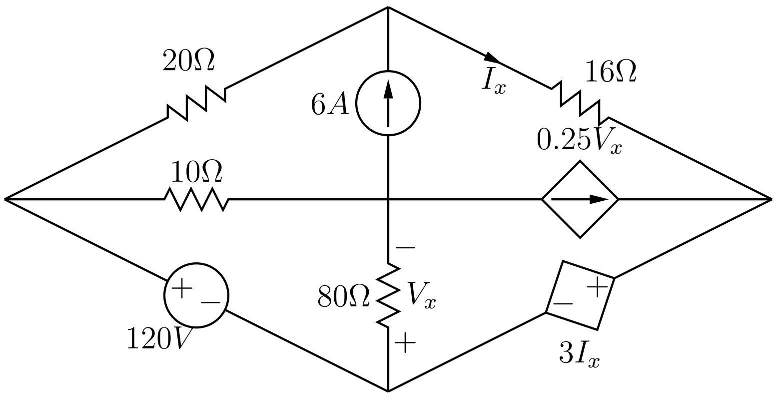
C) -76.92A

D) -230.8A

→ E) None of the above -76.92 mA

Problem 4

Find V_x.



A) 130.9V

B) -43.64V

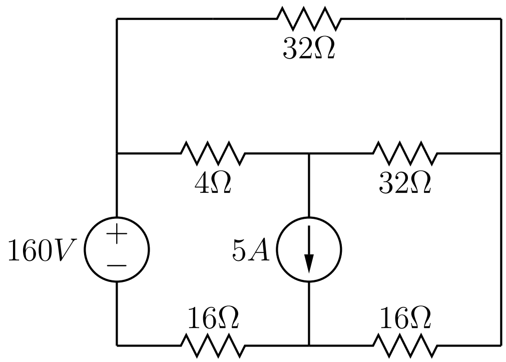
→ C) 43.64V

D) -130.9V

E) None of the above

Problem 5

Find the power associated with the current source.



A) 256W

B) -200W

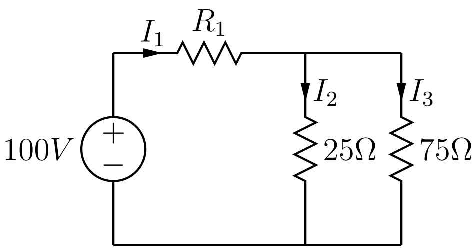
C) 200W

D) -256W

→ E) None of the above 176.9 W absorbed

Problem 6

In the circuit below R_1 is chosen such that $I_3 = 1A$. Find R_1.



A) 12.5Ω

B) 16Ω

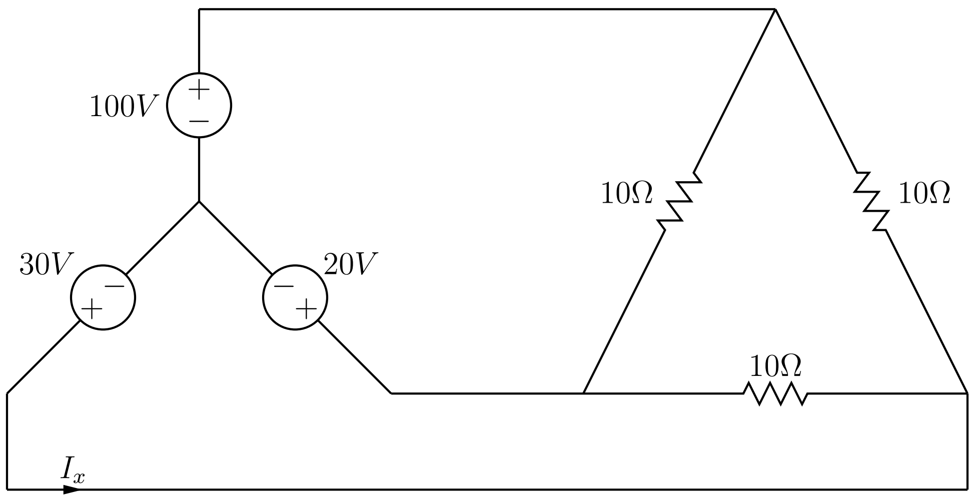
C) 25Ω

→ D) 6.25Ω

E) None of the above

Problem 7

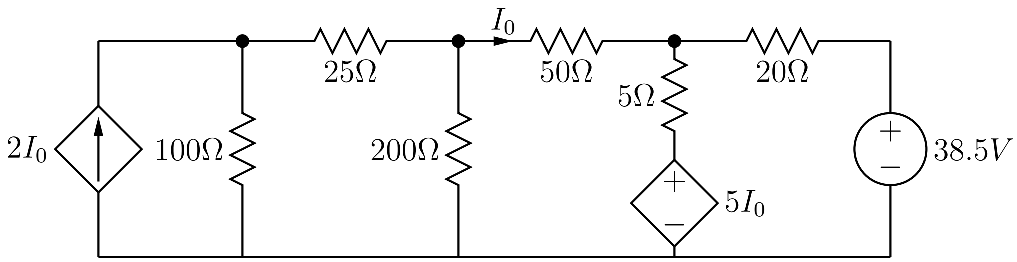
Find I_x.



→ A) -6A
B) 6A
C) 16A
D) -16A
E) None of the above

Problem 8

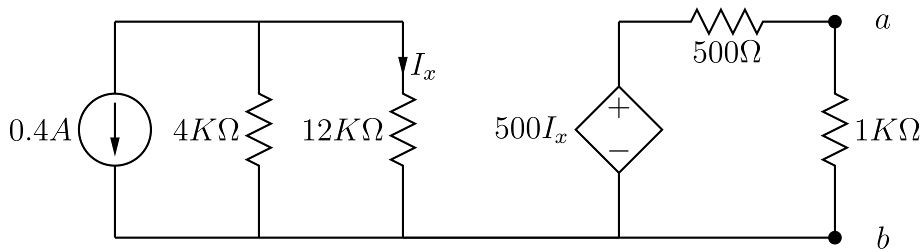
Find I_0.



A) 1.15A
→ B) -0.65A
C) -1.15A
D) 0.65A
E) None of the above

Problem 9

Find the Thevenin equivalent resistance between a and b.



→ A) 333.33Ω

B) 250Ω

C) 83.33Ω

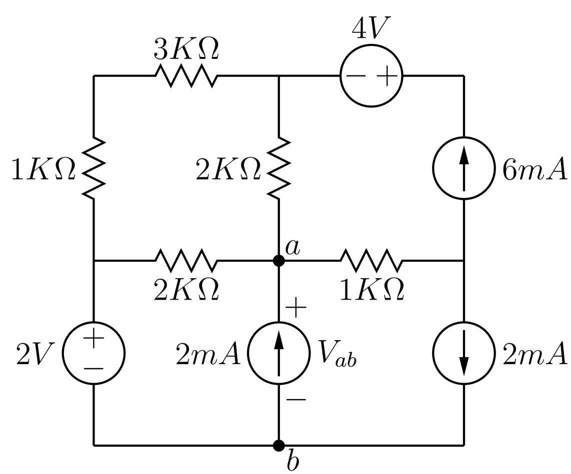
D) 740.46Ω

E) None of the above

Problem 10

Find the Thevenin equivalent voltage between a and b (V_{ab}).

Vab = -1 V



Problem 11

Find the Thevenin equivalent resistance between a and b of the previous figure.

A) 6KΩ

B) 8KΩ

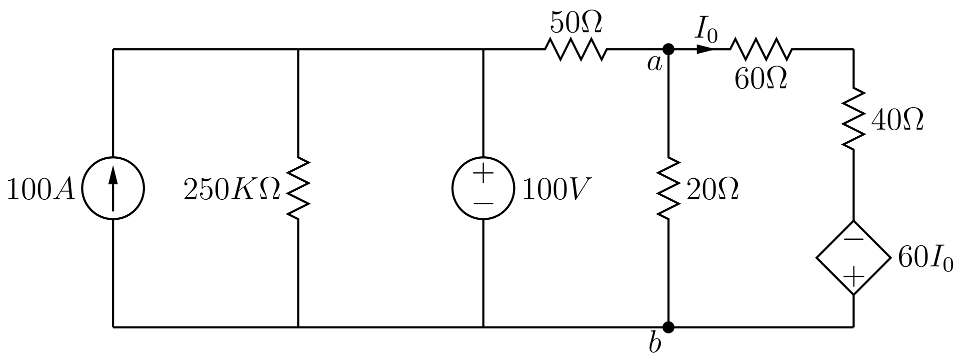
C) 4.5KΩ

→D) 1.5KΩ

E) None of the above

Problem 12

Find the Thevenin equivalent resistance between a and b.



A) 6Ω

B) 8.52Ω

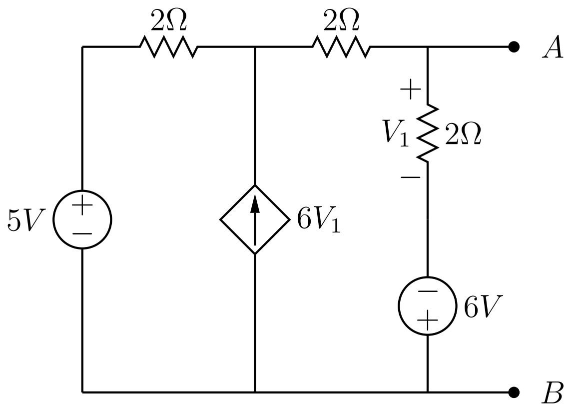
C) 14.28Ω

→D) 10.52Ω

E) None of the above

Problem 4

Find V_1.



→ A) -1.22V

B) 1.22V

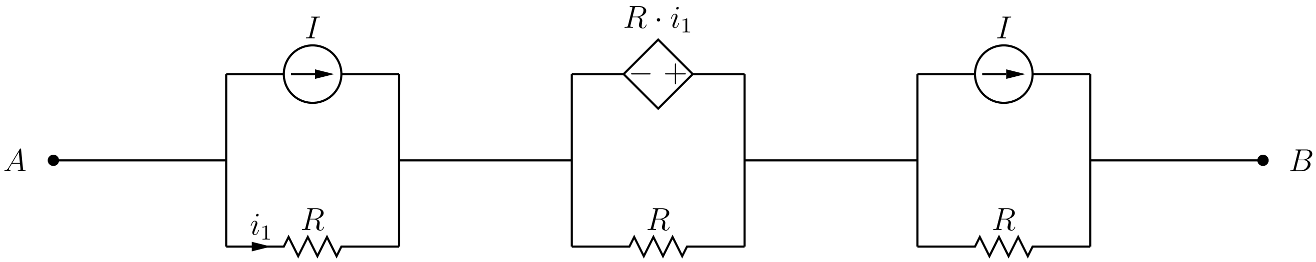
C) -1.57V

D) 1.57V

E) None of the above

Problem 5

Find the Thevenin Equivalent Voltage between A and B (V_{AB}).



A) RI

B) -3RI

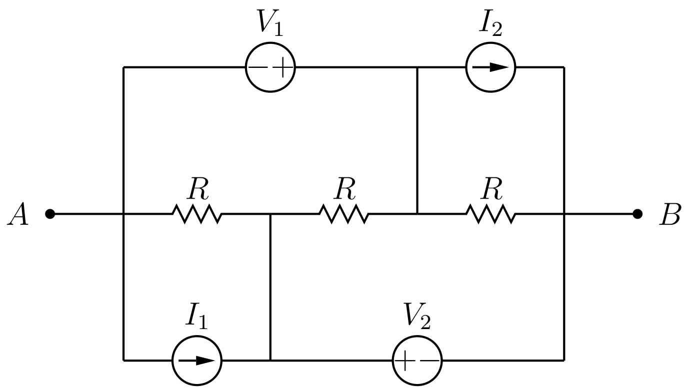
→ C) -RI

D) 3RI

E) None of the above

Problem 6

Find the Norton equivalent resistance between A and B.



A) 3R

B) 3R/2

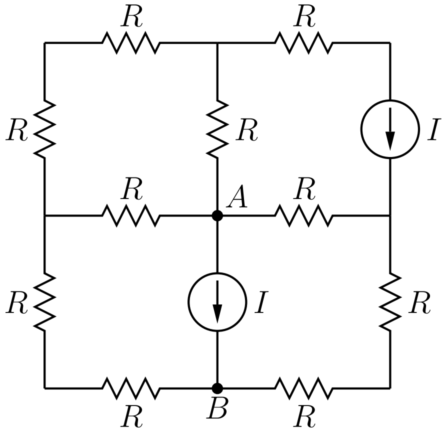
→ C) R/3

D) R

E) None of the above

Problem 7

Find the Norton equivalent current source between A and B.



A) -2.28I(A)

→B) -1.24I(A)

C) -3.21I(A)

D) -6.42I(A)

E) None of the above