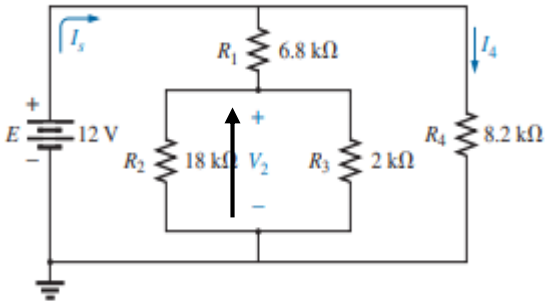
Boumerdes University
Faculty of Technology
Department of Electrical Systems Engineering
Speciality: Biomedical engineering-S3-
Module : Fundamental Electronic 1

Dr Samia BELKACEM 2023/2024

TD 1

Exercise 1

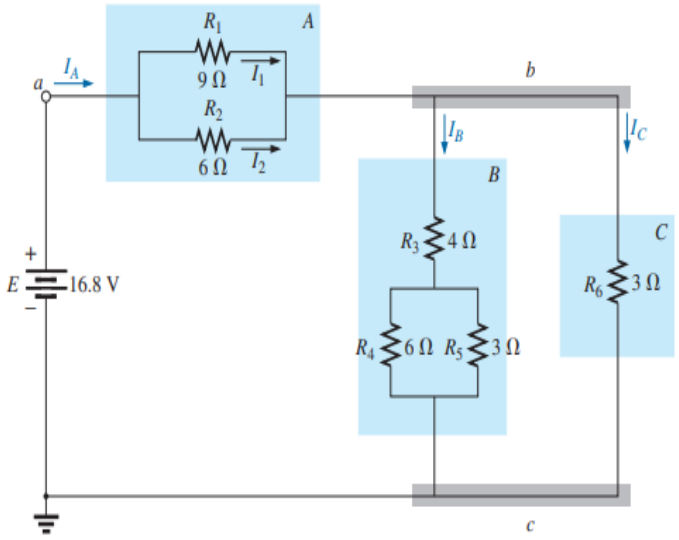
For the following network, determine currents I4, Is and voltage V2.



Given:R1=6.8KΩ;R2=18KΩ;R3=2KΩ;R4=8.2KΩ; E=12V.

Exercise 2

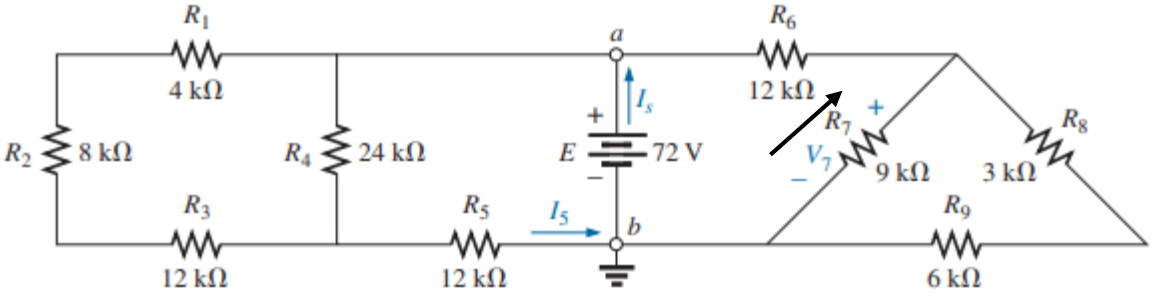
Determine all the currents: Ia, I1, I2, I3, Ib and Ic and voltages: Vab and Vbc.



Given:R1=9Ω;R2=6Ω;R3=4Ω;R4=6Ω; R5=3Ω;R6=3Ω; E=16.8V.

Exercise 3

Consider the circuit given below, calculate the indicated currents: I5, Is and voltage V7.



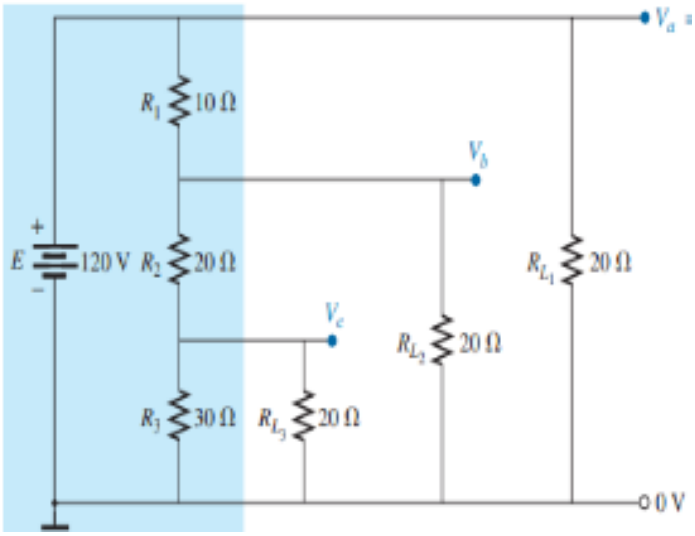
Given:R1=4KΩ;R2=8KΩ;R3=12KΩ;R4=24KΩ;R5=12KΩ;R6=12KΩ; R7=9KΩ; E=72V.

Exercise 5

Using voltage divider find the voltages: Va? Vb? Vc?.

Given:

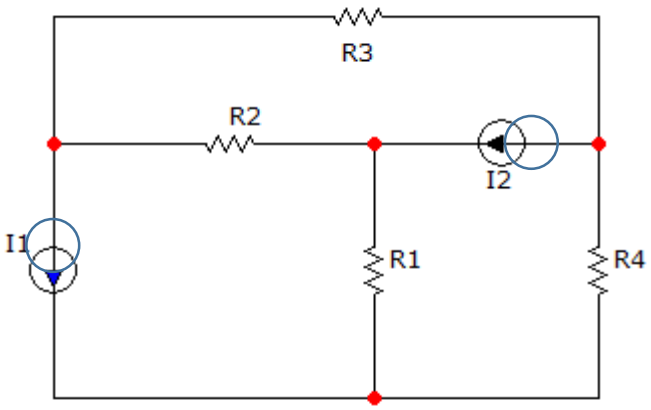
R1=10Ω;R2=20Ω;R3=30Ω;RL1=20Ω; RL2=20Ω;RL3=20Ω; E=120V.



Exercise 6

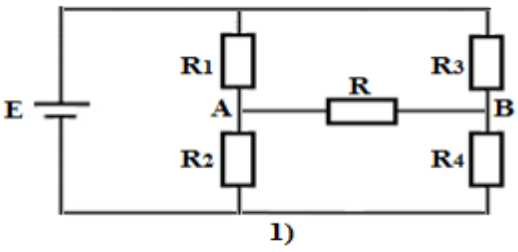
In the following network configuration. Find the current and voltage drops through resistor R2 by using superposition theorem.

Given: R1=1Ω, R2=5Ω, R3=4Ω, R4=2Ω, I1=1A and I2=2A

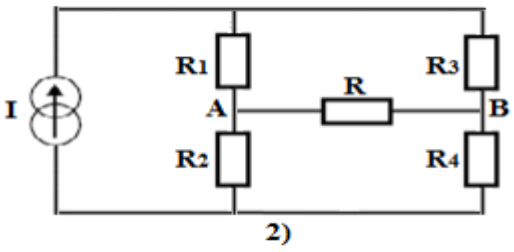


Exercise 7

For the following two circuits, give the equivalent Thevenin diagram between points A and B.



1)

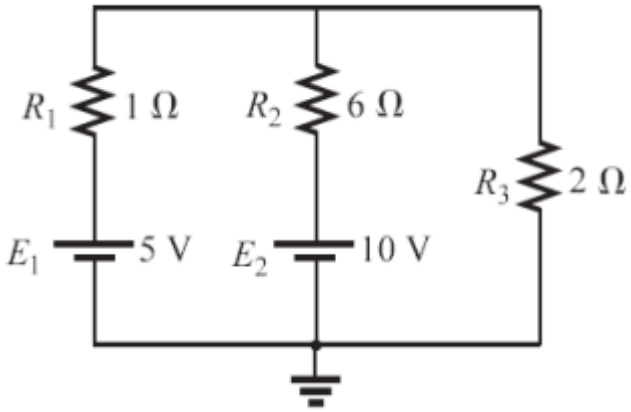


2)

Exercise 9

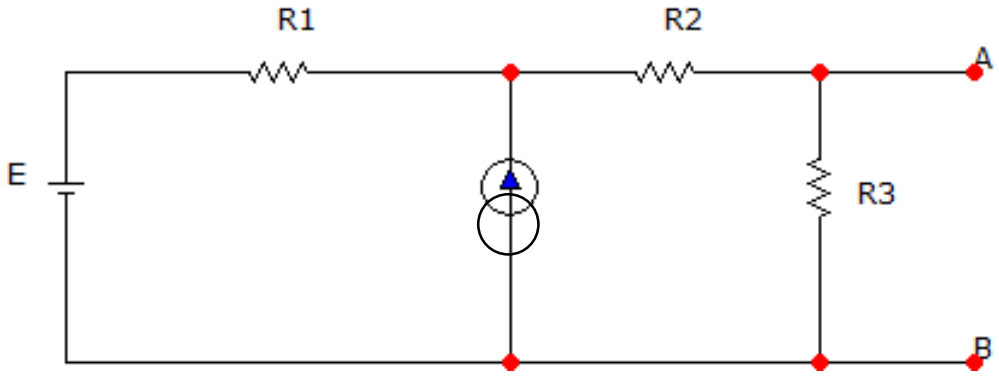
Consider the figure bellow, use Millman's theorem to find the current through the R3 resistor.

Given: R1=1Ω, R2=6Ω, R3=2Ω, E1=5V and E2=10V.



Exercise 10

Find Norton equivalent circuit at terminals a-b.

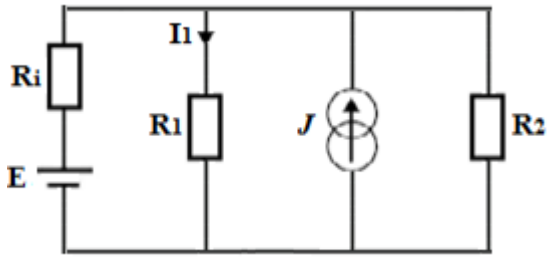


Given: R1=3Ω, R2=3Ω, R3=6Ω, E=15V and I=4A

Homework

Exercise 1

Using the superposition theorem, give the expression of the current *I*1 in the term of Ri, R1, R2, E and J.



Exercise 2

For the following circuit:

1) Find the Thevenin equivalent circuit for the network in the shaded area of the network.
2) Find the current through RL for values of 2 Ω, 10 Ω, and 100 Ω.