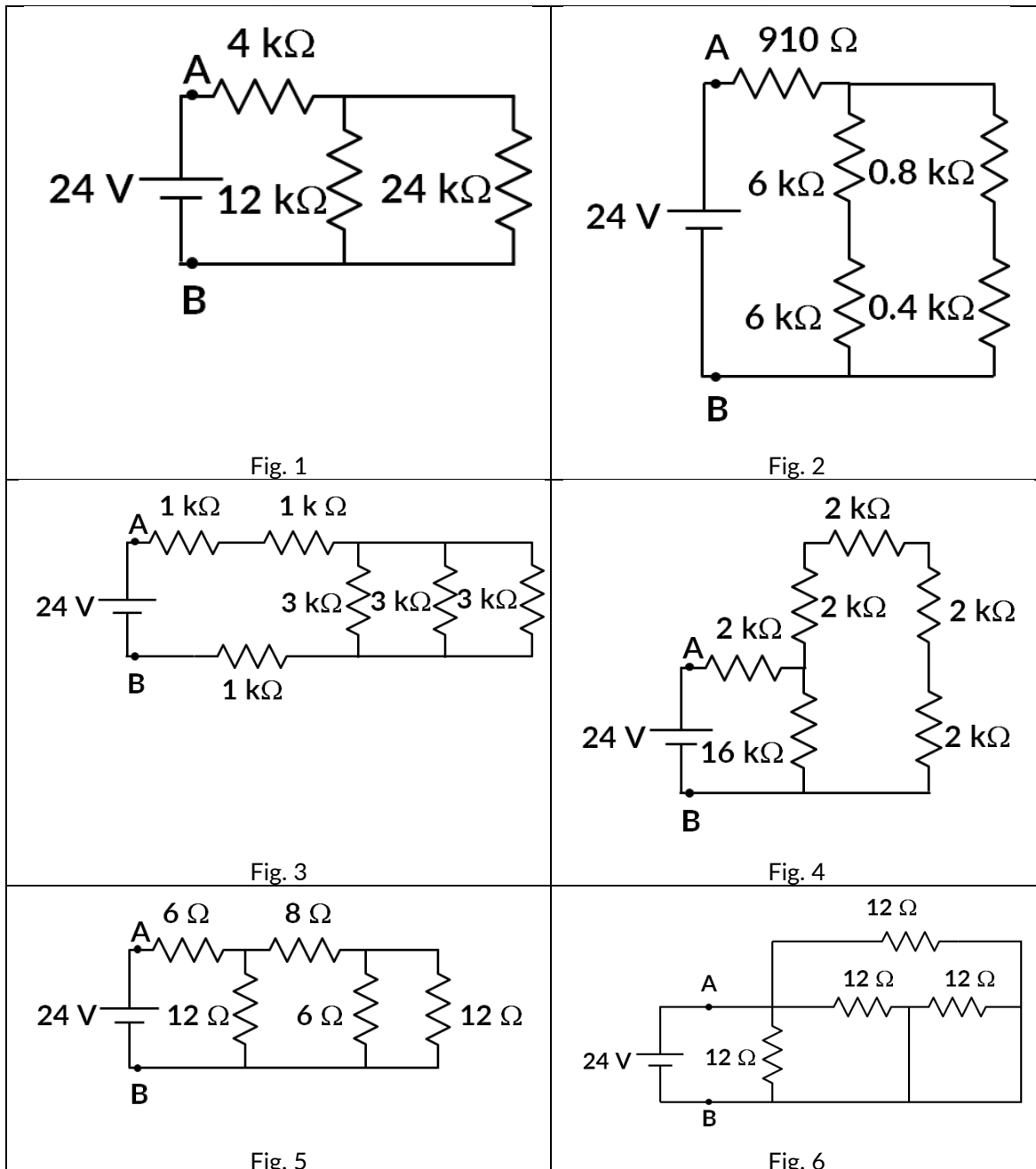# Department of ECE, Bennett University

CSET102L: Introduction to Electrical and Electronics Engineering

Tutorial Sheet-1

1. For the circuits shown in fig. 1 to fig. 6, find the equivalent resistance between nodes **A** and **B**. What is the current through the circuit and power delivered by the voltage source?

Fig. 1	Fig. 2
Fig. 3	Fig. 4
Fig. 5	Fig. 6

Fig. 1: 4 kΩ, A, 24 V, 12 kΩ, 24 kΩ, B

Fig. 2: A 910 Ω, 24 V, 6 kΩ, 0.8 kΩ, 6 kΩ, 0.4 kΩ, B

Fig. 3: 1 kΩ, 1 kΩ, A, 24 V, 3 kΩ, 3 kΩ, 3 kΩ, B, 1 kΩ

Fig. 4: 2 kΩ, 2 kΩ, 2 kΩ, A, 2 kΩ, 24 V, 16 kΩ, 2 kΩ, B

Fig. 5: 6 Ω, 8 Ω, A, 24 V, 12 Ω, 6 Ω, 12 Ω, B

Fig. 6: 12 Ω, A, 12 Ω, 12 Ω, 24 V, 12 Ω, B

2. For the circuits shown in fig. 7 to fig. 9, find the equivalent resistance between nodes **A** and **B**. For the circuits in fig. 7 to fig. 9, each resistor has a resistance of **R**.
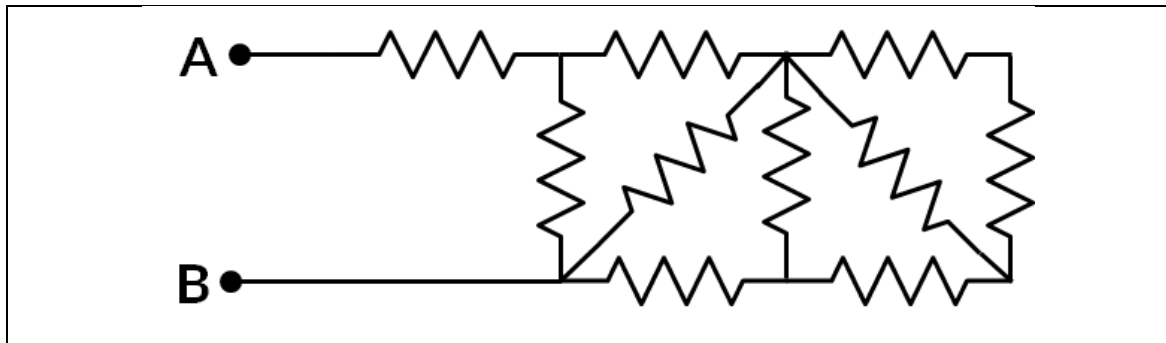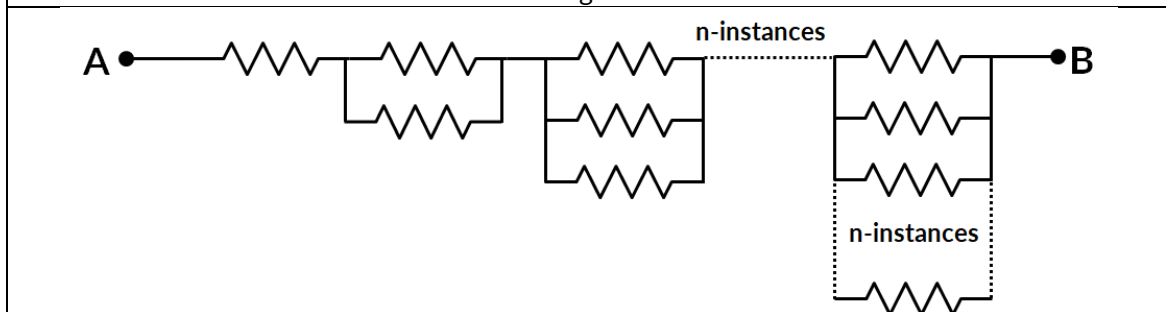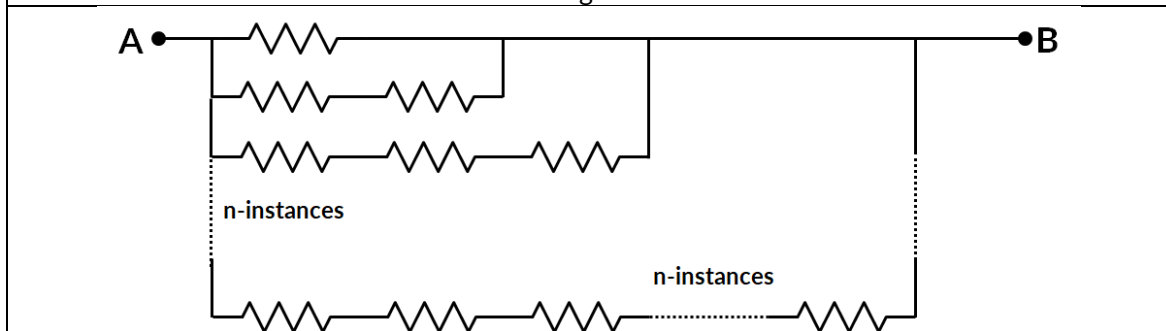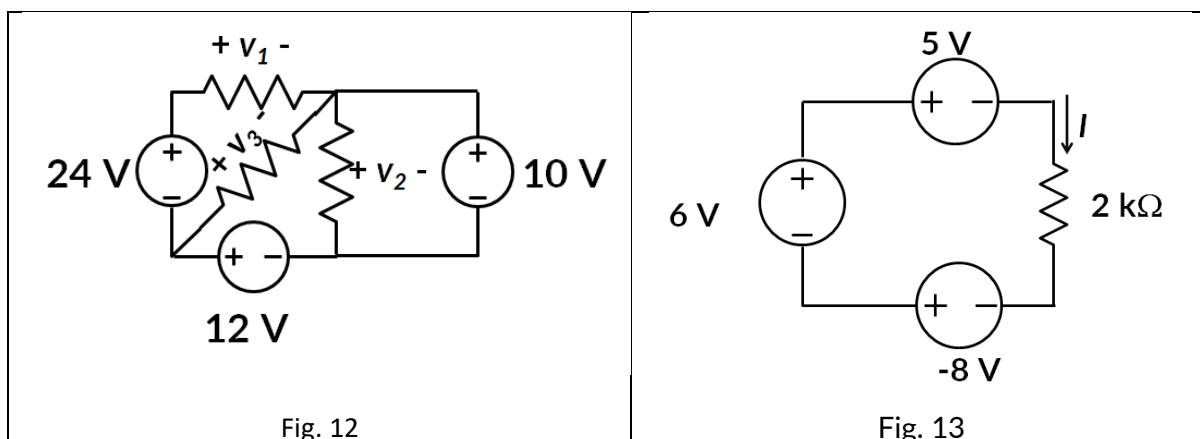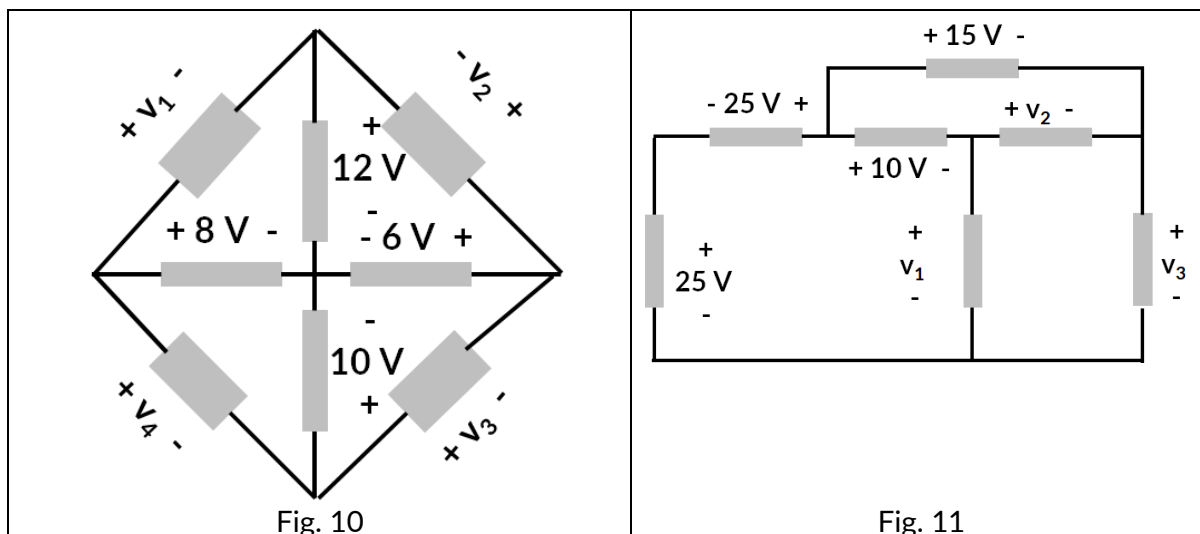

Fig. 7

Fig. 8

Fig. 9

3. For the circuit shown in fig. 10, determine V1 through V4.

4. For the circuit shown in fig. 11, determine V1, V2 and V3.

5. For the circuit shown in fig. 12, determine V1, V2 and V3.

6. Find the current I and the power absorbed or supplied by each element in the circuit shown in fig. 13.

Fig. 10

Fig. 11

Fig. 12

Fig. 13

------------- END OF QUESTIONS -------------

Answers:

Question 1:

	V	R	I	P
Fig. 1	24	12 kΩ	2 mA	48 mW
Fig. 2	24	2 kΩ	12 mA	288 mW
Fig. 3	24	4 kΩ	6 mA	144 mW
Fig. 4	24	7.3 kΩ	3.3 mA	79.2 mW
Fig. 5	24	12 Ω	2 A	48 W
Fig. 6	24	4 Ω	6 A	144 W

Question 2:

Fig. 7: $\frac{89}{55}R$R

Fig 8: ∞

Fig. 9: 0

Question 3:

$v_1 = -4$ V, $v_2 = -6$ V, $v_3 = 4$ V, $v_4 = -2$ V

Question 4:

$v_1 = 40$ V, $v_2 = 5$ V, $v_3 = 35$ V

Question 5:

$v_1 = 26$ V, $v_2 = 10$ V, $v_3 = 2$ V

Question 6:

I = -3.5 mA