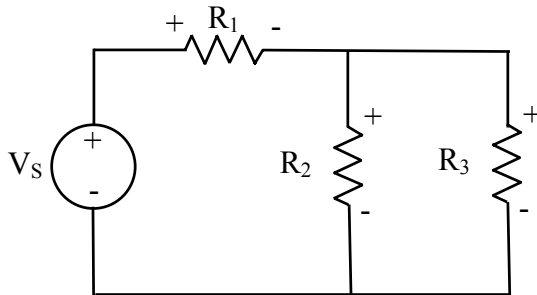


Note: Do not use Node or Mesh analysis. **Solve the problems using voltage and current division.** Make sure to indicate the current direction and polarity in your answers.

**Text Problems:** 2.47, 2.59, 2.64, 2.79

**Other Problems:**

**Problem 1**



Given:

$$V_s = 30 \text{ V}$$

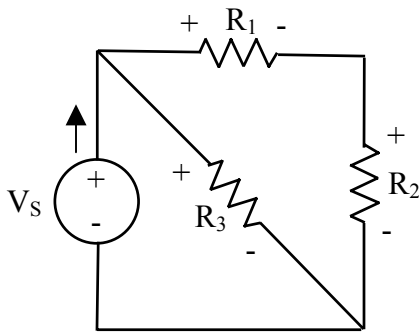
$$R_1 = 500 \, \Omega \quad R_2 = 500 \, \Omega$$

$$R_3 = 500 \, \Omega$$

Find:

1. The equivalent resistance
2. The current through the voltage source.
3. The voltage across each resistor
4. The current through each resistor

**Problem 2**



Given:

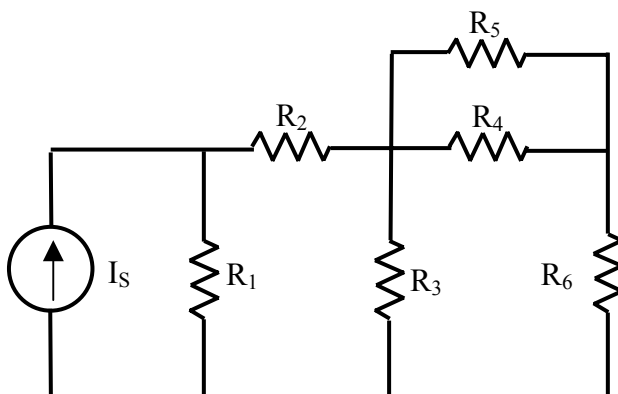
$$V_s = 30 \text{ V}, R_1 = 100 \, \Omega,$$

$$R_2 = 200 \, \Omega, R_3 = 300 \, \Omega$$

Find:

1. The equivalent resistance.
2. The current through the voltage source.
3. The voltage across each resistor
4. The current through each resistor

**Problem 3**



Given:

$$R_1 = 20 \, \Omega, \quad R_2 = 10 \, \Omega$$

$$R_3 = R_4 = R_5 = 20 \, \Omega$$

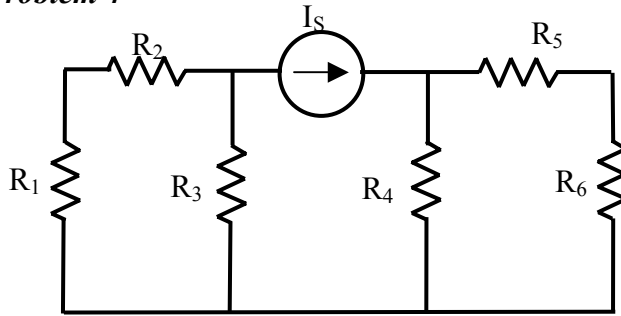
$$R_6 = 30 \, \Omega$$

$$I_s = 5 \text{ A}$$

Find:

- The equivalent resistance as seen by the source.
- The current through  $R_3$  and  $R_6$ .
- The voltage across  $R_5$ .
- The voltage across the source.

**Problem 4**



Given:

$$R_1 = 15 \Omega, R_2 = 15 \Omega$$

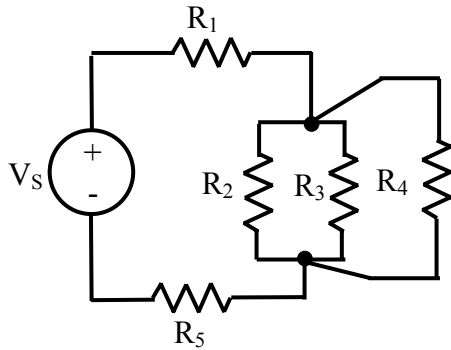
$$R_3 = 30 \Omega, R_4 = 40 \Omega$$

$$R_5 = 20 \Omega, R_6 = 20 \Omega$$

$$I_s = 100 \text{ mA}$$

Find:  $i_{R_3}, i_{R_6}, V_{R_1}, V_{R_6}$

**Problem 5**



Given:

$$R_1 = 15 \Omega, R_2 = 10 \Omega$$

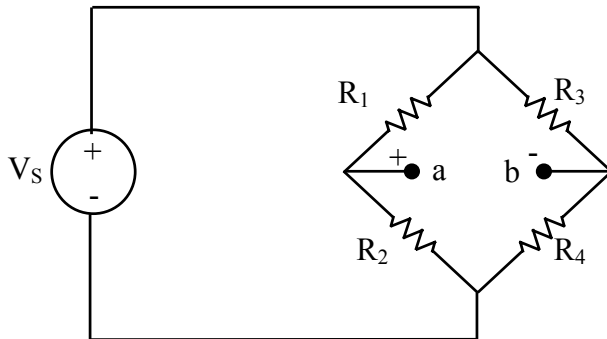
$$R_3 = 5 \Omega, R_4 = 10 \Omega$$

$$R_5 = 2.5 \Omega, V_s = 5 \text{ V}$$

Find:

- $i_{R_1}, i_{R_4}, V_{R_3}, V_{R_5}$
- The equivalent resistance as seen by the source.

**Problem 6**



Given:

$$V_s = 6 \text{ V}$$

$$R_1 = 5 \Omega$$

$$R_2 = 10 \Omega$$

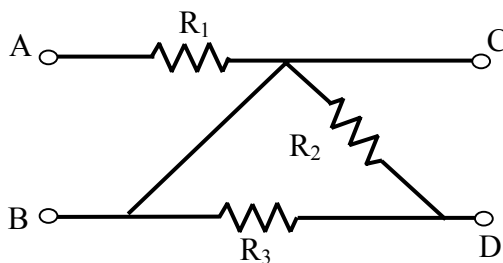
$$R_3 = 10 \Omega$$

$$R_4 = 5 \Omega$$

Find:

1. Find the voltage between nodes a and b,  $V_{ab}$ .

**Problem 7**



Given:

$$R_1 = 60 \Omega, R_2 = 100 \Omega$$

$$R_3 = 100 \Omega,$$

Find:

- $R_{AB}, R_{BC}, R_{AC}, R_{CD}, R_{BD}, R_{AD}$ ,