Assignment 2

The diagram below illustrates the circuit for the assignment given. As per our previous instruction, this is intended to be an exercise for you to study and explore, not to solve or complete all the problems. You are required to solve the problems by referring to the information provided in the assignment.

The network contains a total of four nodes, each with a voltage source. The voltages are as follows:

- Node 1: 20 V
- Node 2: 30 V
- Node 3: 60 V
- Node 4: 50 V

The current through each branch is to be determined. Use the method of nodal analysis to solve the circuit. The total resistance in the circuit is 10 Ω.

1. Calculate the current through each branch of the network.

2. Determine the power absorbed by each voltage source.

3. Calculate the power delivered to the load.

4. Find the total power dissipated in the network.

5. Determine the efficiency of the network.

6. Find the maximum power delivered to the load.

Please show all your workings and calculations. Good luck with your assignment.