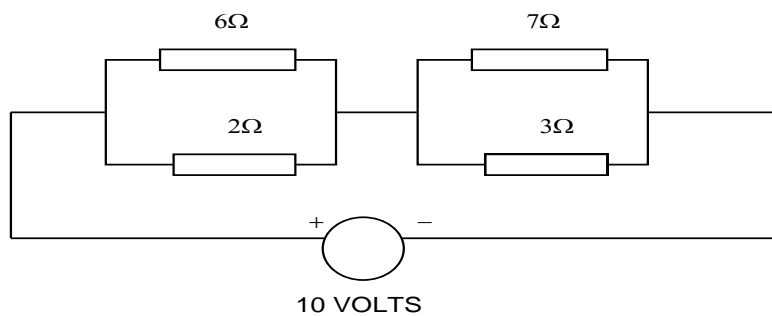


CS1025

Problem Sheet 2

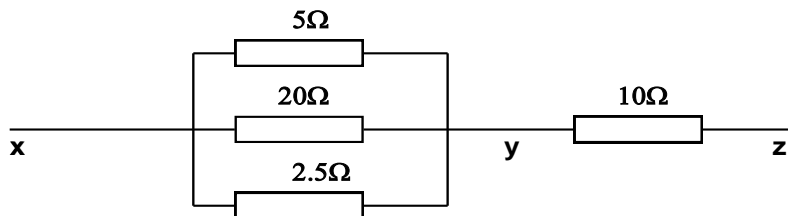
1. Calculate the current in each of the resistors in the following network with the 10V supply.



$6\Omega - 2.085A$, $2\Omega - 0.695A$, $7\Omega - 0.834A$, $3\Omega - 1.946A$

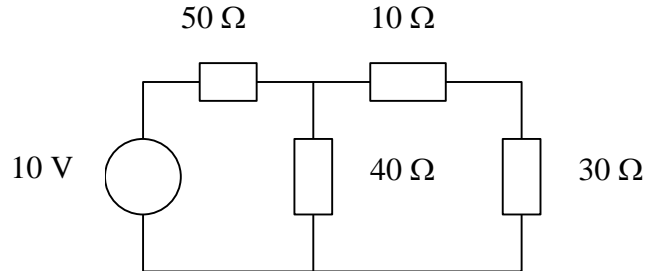
2. If the power dissipated in the 10Ω resistor of the circuit below is 20 watts. Determine

- The current in the 10Ω resistor
- The potential difference across XZ
- The total power dissipated in the circuit.



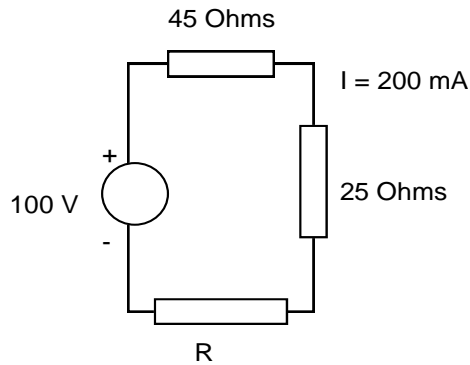
$1.41A$, $16.27V$, $23.08W$

3. Calculate the current in each resistor in the following network. What is the potential difference across the 50 Ohm resistor?



70Ω, 50Ω - 0.143A, 40Ω - 0.0714A, 30Ω and 10Ω - 0.0714A

4. Calculate the voltage across the unknown load in the following circuit.



86V

5. Write down expressions for the following sinusoidal voltages:

- (i) 10V amplitude and 60Hz frequency
- (ii) 0.2V pk-to-pk, 1000 *rad/s* frequency with a $\pi/4$ rad phase shift
- (iii) 100mV amplitude and 1ms period

10Cos(120π)V, 0.1Cos(1000t+π/4)V, 0.1Cos(2000π)V