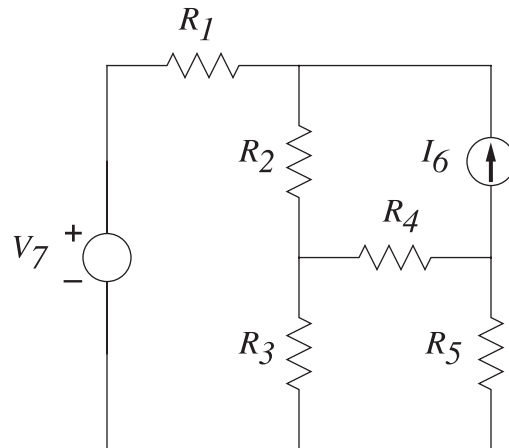


Problem S3 (Signals and Systems)



1. For the circuit above, find the branch voltages and branch currents using the node method. The component values are:

$$R_1 = 3 \Omega$$

$$R_2 = 2 \Omega$$

$$R_3 = 3 \Omega$$

$$R_4 = 3 \Omega$$

$$R_5 = 1 \Omega$$

$$I_8 = 5 \text{ A}$$

$$V_7 = 3 \text{ V}$$

2. Verify that the net power dissipation of the circuit is zero, that is, that

$$\sum_{n=1}^7 i_n v_n = 0 \tag{1}$$