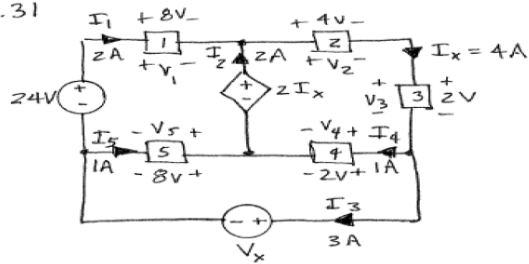


1.31



Passive sign convention:

Elements 1, 2, 3, 4,  $V_x$

$$P_1 = V_1 I_1 = 16 \text{ W absorbed}$$

$$P_2 = V_2 I_x = 16 \text{ W absorbed}$$

$$P_3 = V_3 I_x = 8 \text{ W absorbed}$$

$$P_4 = V_4 I_4 = 2 \text{ W absorbed}$$

$$P_{V_x} = V_x I_3 = 3V_x \text{ absorbed}$$

$$P_{24V} = 24I_1 = 48 \text{ W supplied} \quad P_5 = V_5 I_5 = 8 \text{ W supplied}$$

$$P_{2I_x} = 2I_x I_2 = 16 \text{ W supplied}$$

$$P_{\text{supplied}} = P_{\text{absorbed}}$$

$$P_{24V} + P_5 + P_{2I_x} = P_1 + P_2 + P_3 + P_4 + P_{V_x}$$

$$48 + 8 + 16 = 16 + 16 + 8 + 2 + 3V_x$$

$$V_x = 10 \text{ V}$$