

EE1001 Electrical and Magnetic Circuits

Problem set #2 (Due on 6th February 2015)

HKD: Hayt, Kemmerly, and Durbin

Engineering circuit analysis, 7th Edition

Tata McGraw Hill 2010, 2006

Chapter Problem

① HKD 4.13 (Fig. 4.43)

(Label the nodes 1, 2, 3, ... starting from the left)

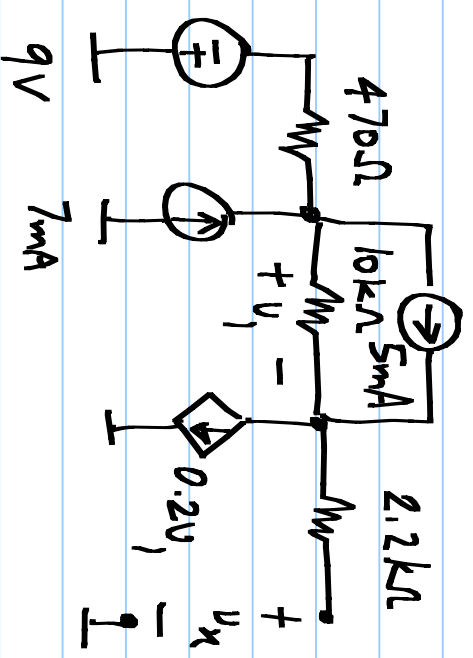
* Set up the nodal analysis eqn. $[G] \underline{v} = \underline{I}$

* Solve for \underline{v}

* Determine v_x

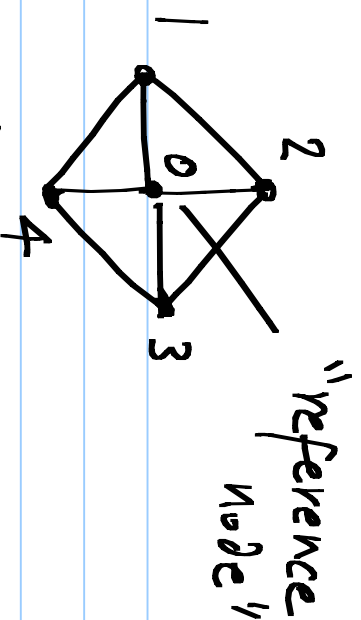
* Setup the MNA equations

MNA: modified nodal analysis



② HKD 4.16 (Fig. 4.46)

(Label the nodes as shown here:)

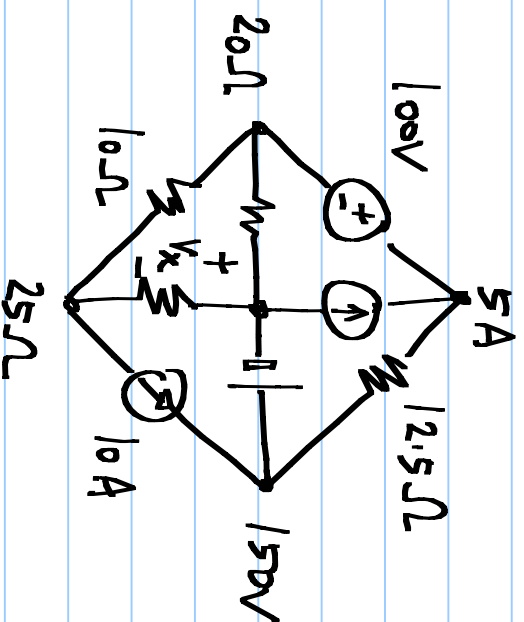


* Set up the nodal analysis eqn. $[G] \underline{V} = \underline{I}$

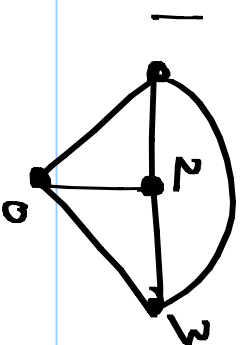
* Solve for \underline{V}

* Find V_x

* Setup the MNA equations



③ HKD 4.17 (Fig. 4.47)



(label the nodes as shown here:)

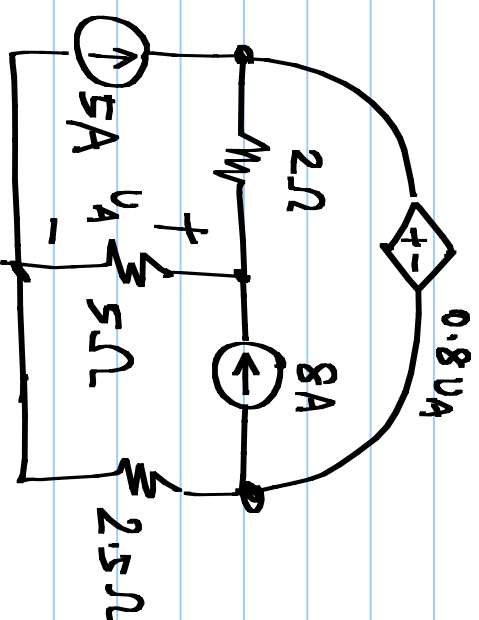
* Set up the nodal analysis eqn. $[G] \underline{v} = \underline{I}$

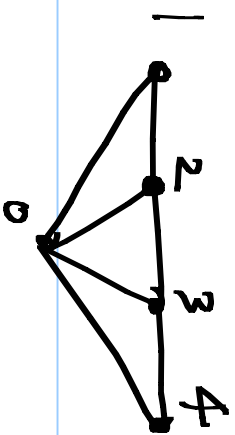
* Solve for \underline{v}

* Find V_A and the power dissipated in

the 2.5Ω resistor

* Setup the MNA equations





④ HKD 4.19 (Fig. 4.49)

(Label the nodes as shown here:)

* Set up the nodal analysis eqn. $[G] \underline{v} = \underline{I}$

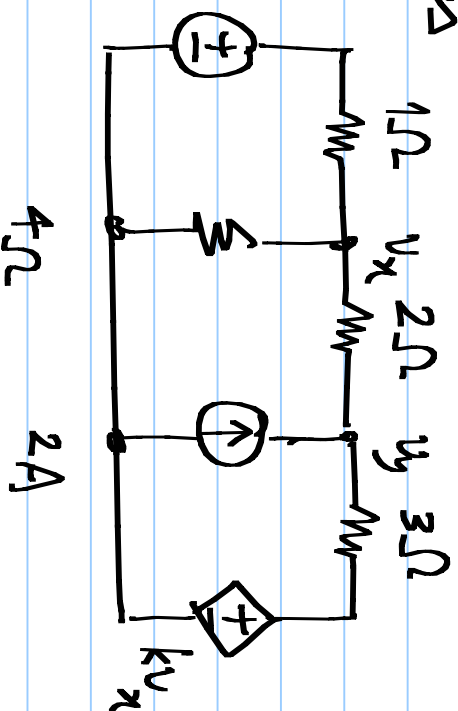
* Solve for \underline{v}

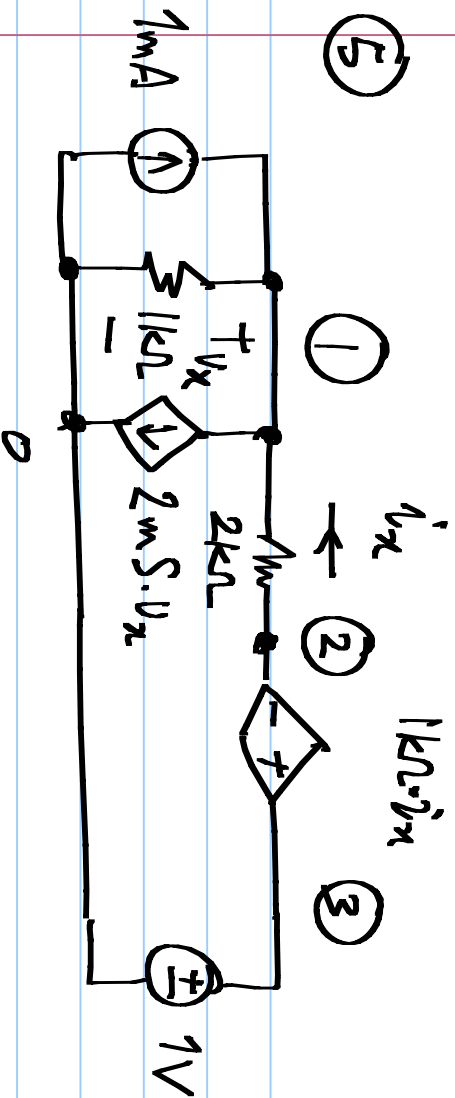
* Find the value of k that causes

v_y to be zero

* Setup the MNA equations

6V





* Write down the NVA equations

* Are the 1mA and 1V sources dissipating or generating power? How much?