ECE 2201 – CIRCUIT ANALYSIS I

HOMEWORK #7

1. a) Use the mesh-current method to write a complete set of independent equations that could be used to solve this circuit. Do not attempt to simplify the circuit.

Next slide

b) Find *iX*.



2. a) Use the mesh-current method to write a complete set of independent equations that could be used to solve this circuit. Do not attempt to simplify the circuit.

b) Find *vX*.



3. a) Use the mesh-current method to write a complete set of independent equations that could be used to solve this circuit. Do not attempt to simplify the circuit.

b) Find *vX*.



4. a) Use the mesh-current method to write a complete set of independent equations that could be used to solve this circuit. Do not attempt to simplify the circuit.

b) Find *iX*.



5. a) Use the mesh-current method to write a complete set of equations that could be used to solve the circuit below. Define all variables. Do not attempt to simplify the circuit. Do not attempt to solve the equations.

b) Compare the number of equations required using the node-voltage method and the mesh current method, for this circuit. Which method requires fewer equations?



6. a) Use the mesh-current method to write a complete set of equations that could be used to solve this circuit. Do not simplify the circuit. Do not attempt to solve or simplify your equations. Define all variables.

b) Compare the number of equations required using the node-voltage method and the mesh current method, for this circuit. Which method requires fewer equations?



7. a) For the given circuit, use the mesh-current method to write a complete set of independent equations that could be used to solve this circuit. Do not simplify the circuit. Do not attempt to solve or simplify your equations. Define all variables.

b) Compare the number of equations required using the node-voltage method and the mesh current method, for this circuit. Which method requires fewer equations?



## Numerical Solutions

1. *iX* = -0.3787[A]

2. *vX* = 430.06869[V]

3. *vX* = 0.38679[V]

4. *iX* = -0.40467[A]

5. through 7. Solutions omitted.