

ECE 2100

Circuit Analysis

Lesson 10

Chapter 3:

Mesh Analysis

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Methods of Analysis - Chapter 3

3.1 Motivation

3.2 Nodal analysis.

3.3 Nodal analysis with voltage sources.

3.4 Mesh analysis.

3.5 Mesh analysis with current sources.

3.6 Nodal and mesh analysis by inspection.

3.7 Nodal versus mesh analysis.

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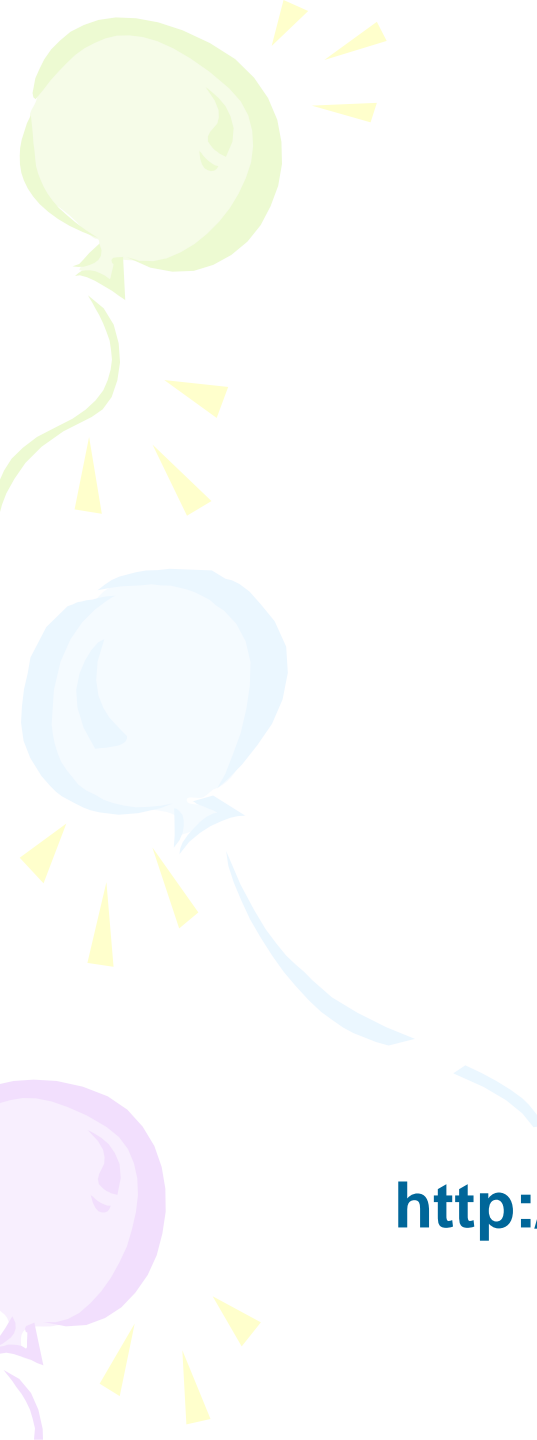
Circuit Analysis

Return Problem
Set #1
Quiz #1

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Circuit Analysis

Review: Lesson 9
Chapter 3: Mesh Analysis



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Circuit Analysis

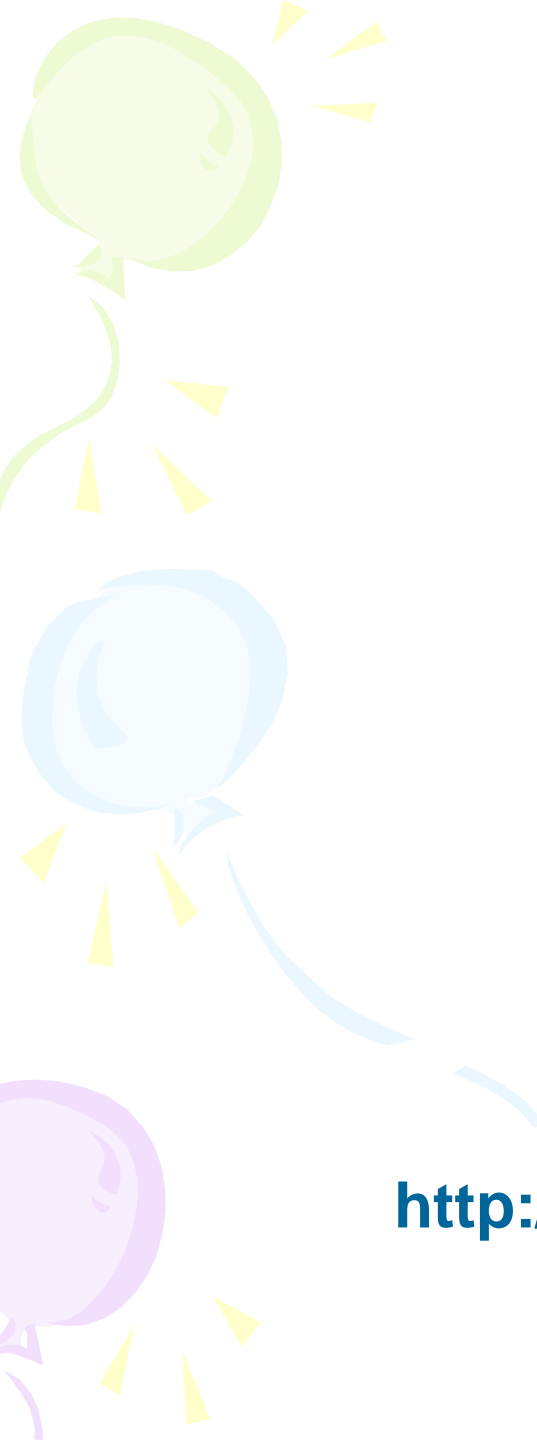
Lesson 9

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Chapter 3:

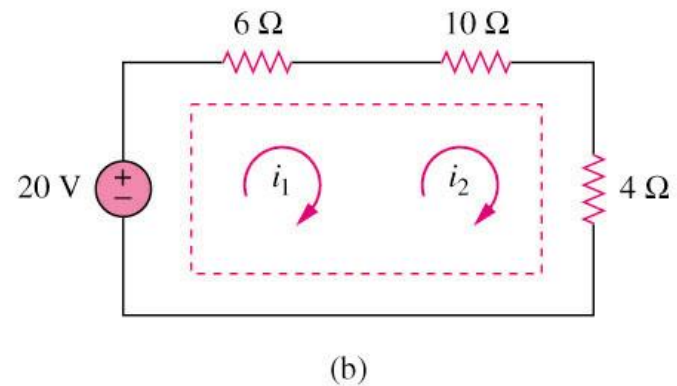
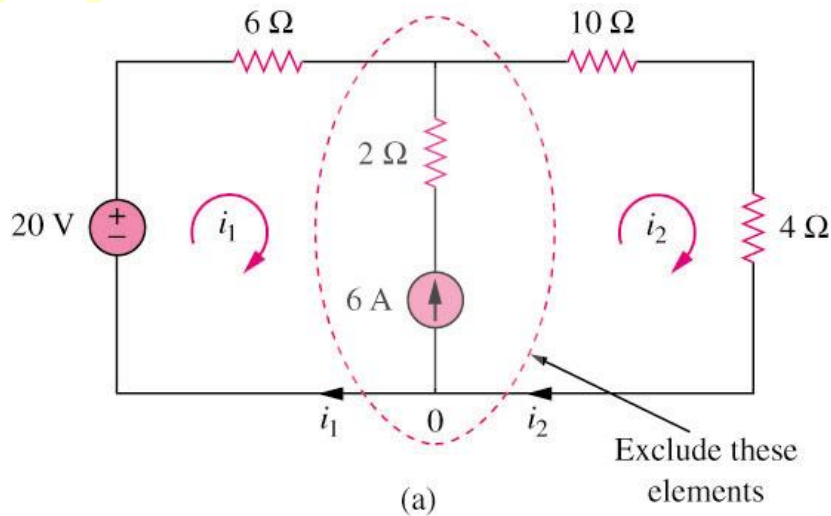
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3.5 Mesh Analysis with Current Source (1)

Circuit with current source



A **super-mesh** results when two meshes have a (dependent or independent) current source in common as shown in (a). We create a super-mesh by excluding the current source and any elements connected in series with it as shown in (b).

*Refer to in-class illustration, textbook



3.5 Mesh Analysis with Current Source (2)

The properties of a super-mesh:

1. The current source in the super-mesh is not completely ignored; it provides the constraint equation necessary to solve for the mesh currents.
2. A super-mesh has no current of its own.
3. A super-mesh requires the application of both KVL and KCL.

