

## **Chapter 2.4**

### **Analysis Techniques**

### **Source Transformations**

Engr228 - Circuit Analysis  
Spring 2020

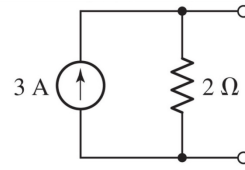
Dr Curtis Nelson

## **Section 2.4 Objective**

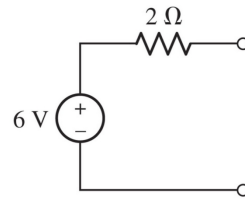
- Learn to apply source transformations between voltage and current sources, and use this knowledge to simplify circuit analysis.

## Source Transformation

- The circuits (a) and (b) are equivalent at the terminals;
- If given circuit (a), but circuit (b) is more convenient, switch them;
- This process is called *source transformation*.



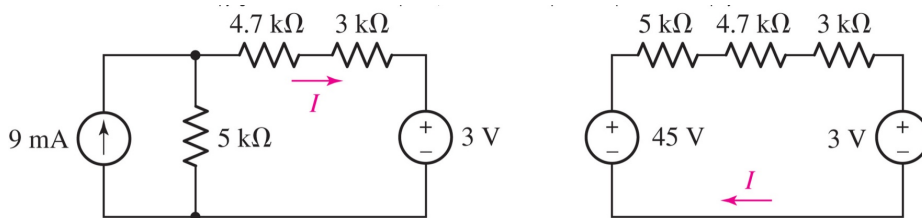
(a)



(b)

## Example: Source Transformation

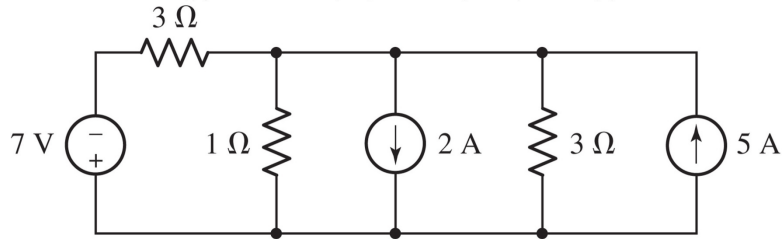
We can find the current  $I$  in the circuit below using a source transformation.



$$I = 3.307 \text{ mA}$$

### Example Problem

Find the power of the 7V source.



$$P_{7V} = 17.27W \text{ (generating)}$$

### Section 3.8 Summary

- You learned to apply source transformations between voltage and current sources, and use this knowledge to simplify circuit analysis.