

ECE 201, Section 4

Lecture 9

Prof. Peter Bermel

January 30, 2012

Loop Analysis

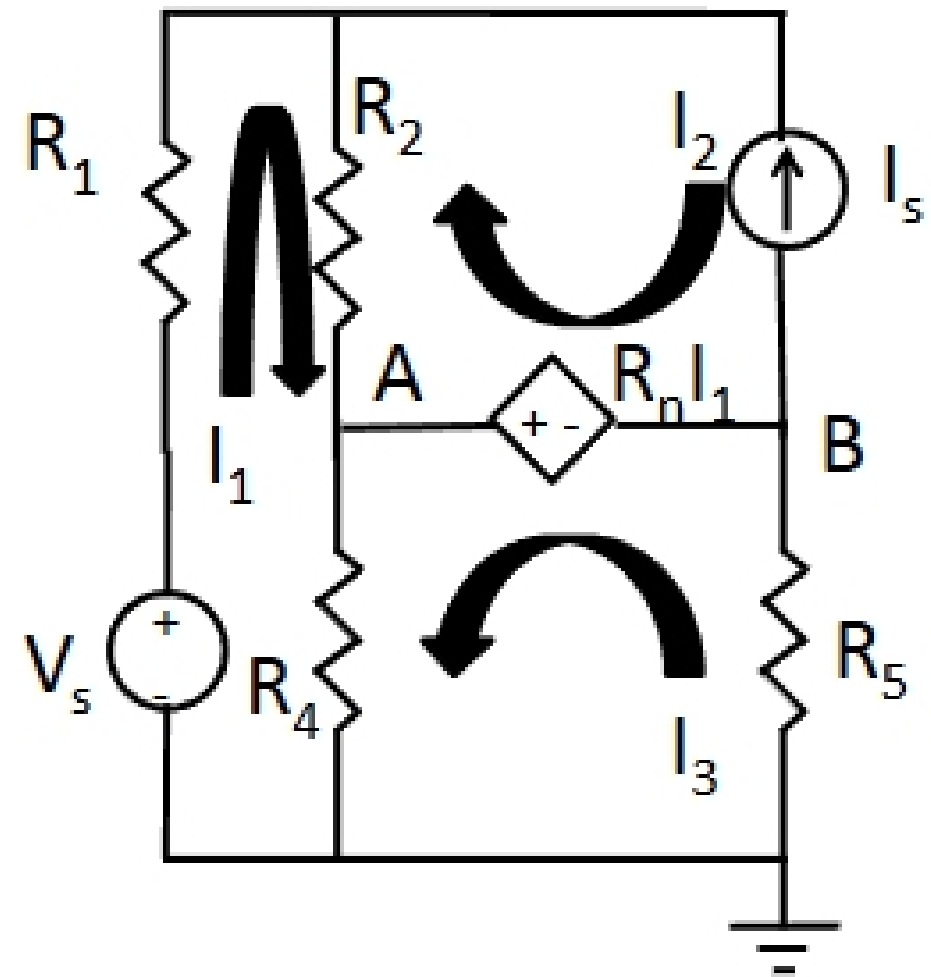
- Applying KVL around each loop:

$$R_4(I_1 + I_3) + R_2(I_1 - I_2) + R_1 I_1 = V_s$$

$$R_2(I_2 - I_1) - v_1 = R_n I_1$$

$$R_4(I_3 + I_1) + R_5 I_3 = R_n I_1$$

$$I_2 = -I_s$$



Loop Analysis

- Combining KVL + constraints:

$$[R_1 + R_2 + R_4]I_1 + R_4I_3 = V_s - R_2I_s$$

$$(R_2 + R_n)I_1 + v_1 = -R_2I_s$$

$$(R_4 - R_n)I_1 + (R_4 + R_5)I_3 = 0$$

