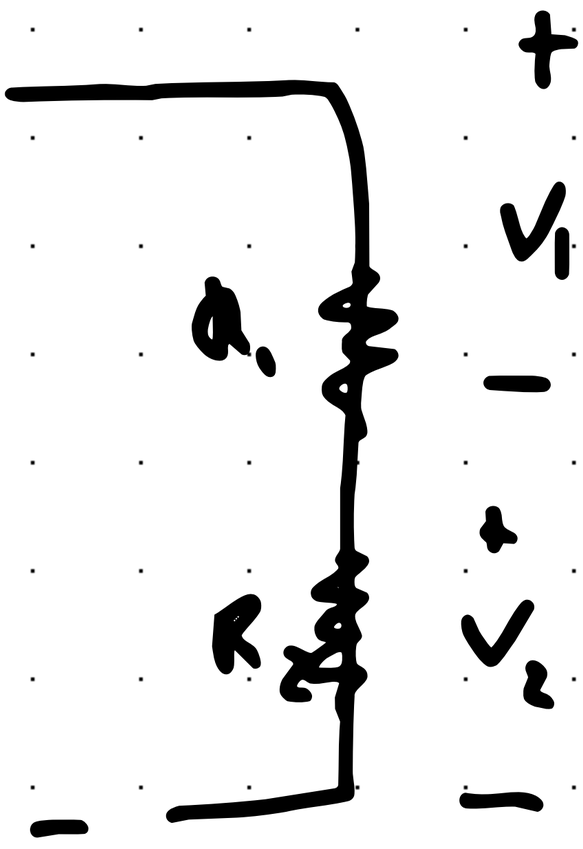
Lecture 4

ECED 2000

Voltage Divider

$$V_1 = \left(\frac{R_1}{R_1 + R_2}\right) V$$

$$V_2 = \left(\frac{R_2}{R_1 + R_2}\right) V$$

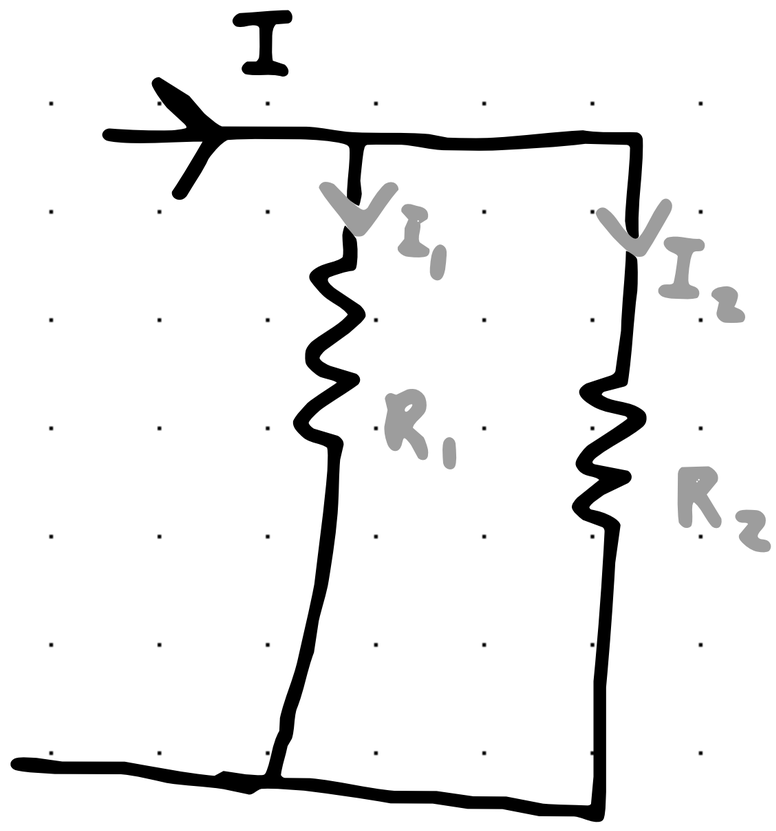


This applies for resistors in series!

Current Divider

$$I_1 = I\frac{R_2}{R_1 + R_2}$$

$$I_2 = I\frac{R_1}{R_1 + R_2}$$



This Applies to <u>two</u> resistors in parallel!

- If in series on a parallel branch, make a bigger R_{eq}

Voltage Divider Example

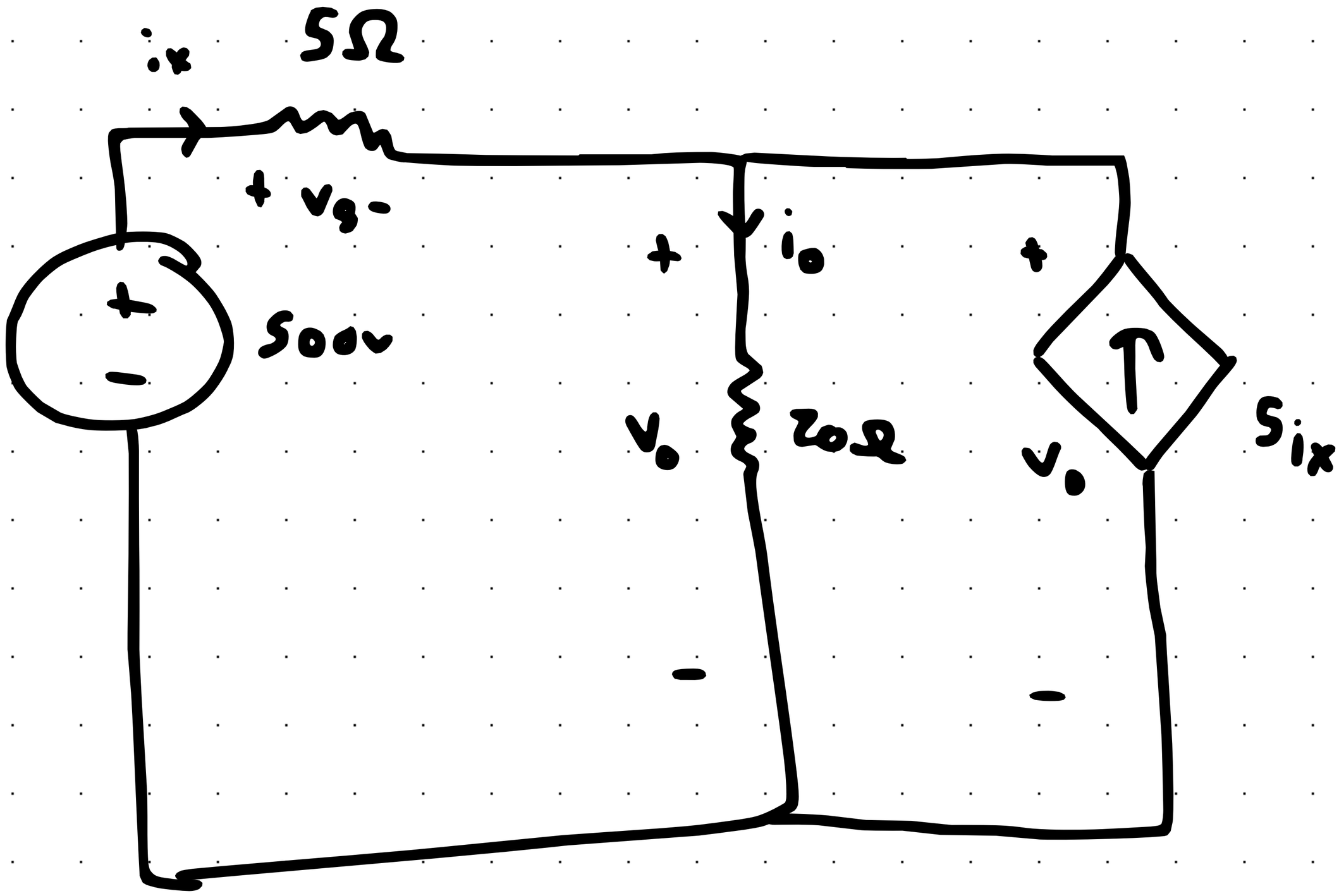
$$V_1 = V\left(\frac{R_1}{R_1 + R_2 + R_3 + R_4}\right)$$

$$V_2 = V\left(\frac{R_2}{R_1 + R_2 + R_3 + R_4}\right)$$

$$V_3 = V\left(\frac{R_3}{R_1 + R_2 + R_3 + R_4}\right)$$

$$V_3 = V\left(\frac{R_3}{R_1 + R_2 + R_3 + R_4}\right)$$

Example 1



Calculate the current and the power in each branch, and verify that

$$\sum P_{gen} = \sum P_{abs}$$