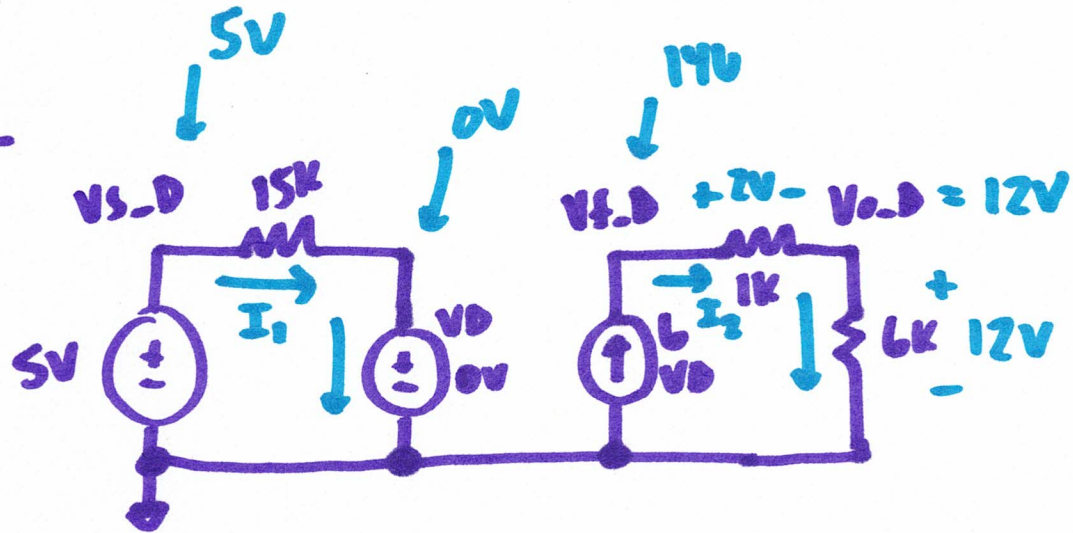


EE 220: Circuits 1

- 0 • Ohm's Law (Power)
- 0 • Series & parallel equivalents
- * a lot • KVL, KCL ✓
- * 6 • Nodal analysis
- * 5 • voltage, current dividers
- * lots • superposition, mesh analysis
- * lots • Thevenin & Norton
- * 5 • source transformation
- 0 • power dissipation
- * 5 • dependent sources ✓



HW9:2D

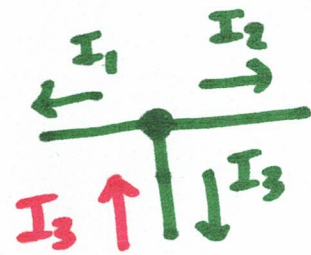


$$I_1 = \frac{5V - 0V}{15k} = 0.33mA$$

$I_1 \cdot 6 = I_2 = 2mA$

KVL, KCL

KCL: The sum of all currents out of a junction = 0.

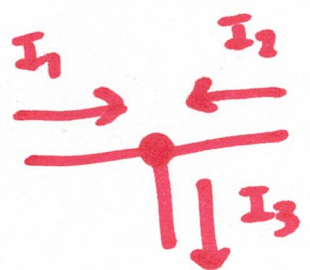


$$I_1 + I_2 + I_3 = 0$$

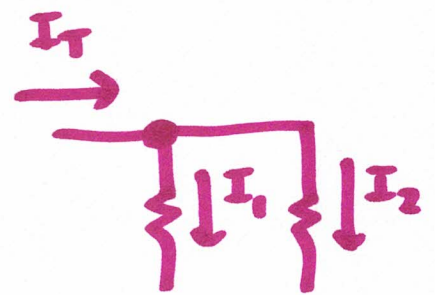
$$I_1 + I_2 + (-I_3) = 0$$

$$I_1 + I_2 - I_3 = 0$$

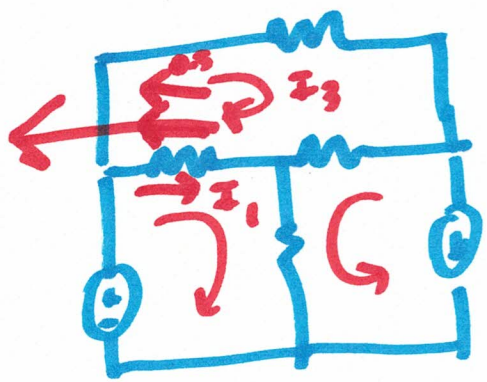
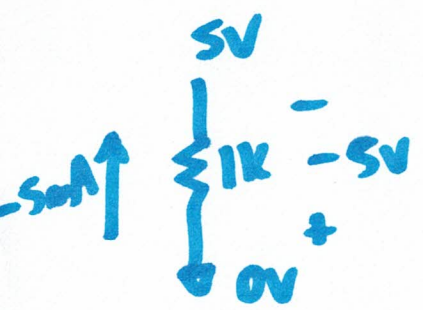
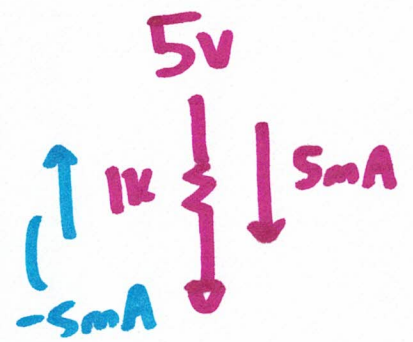
$$I_1 + I_2 = I_3$$



$$I_3 = I_1 + I_2$$



$$I_1 + I_2 = I_T$$

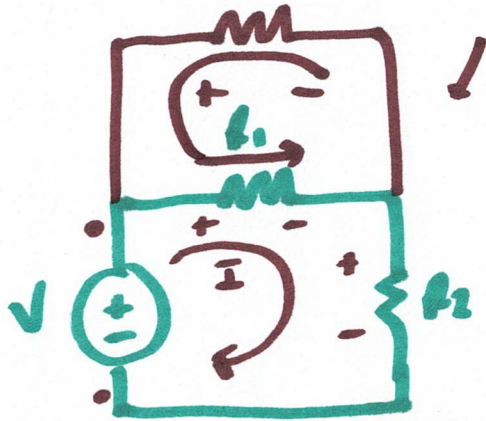


$$I_1 = -0.5mA$$

$$I_3 = 2mA$$

$$2.5mA$$

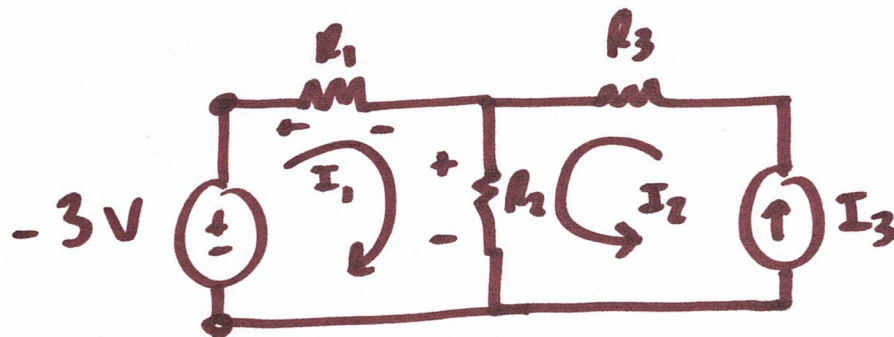
KVL: The sum of all voltage drops in a loop = 0



$$+V - I \cdot R_1 - I \cdot R_2 = 0$$

$$V - I \cdot (R_1 + R_2) = 0$$

$$V = I \cdot (R_1 + R_2)$$



$$+V - I_1 \cdot R_1 - (I_1 + I_2) \cdot R_2 = 0$$

$$-3V - \dots$$