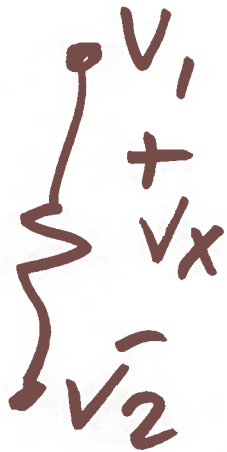


# EE 221 Circuits 1

Jan. 30, 2019

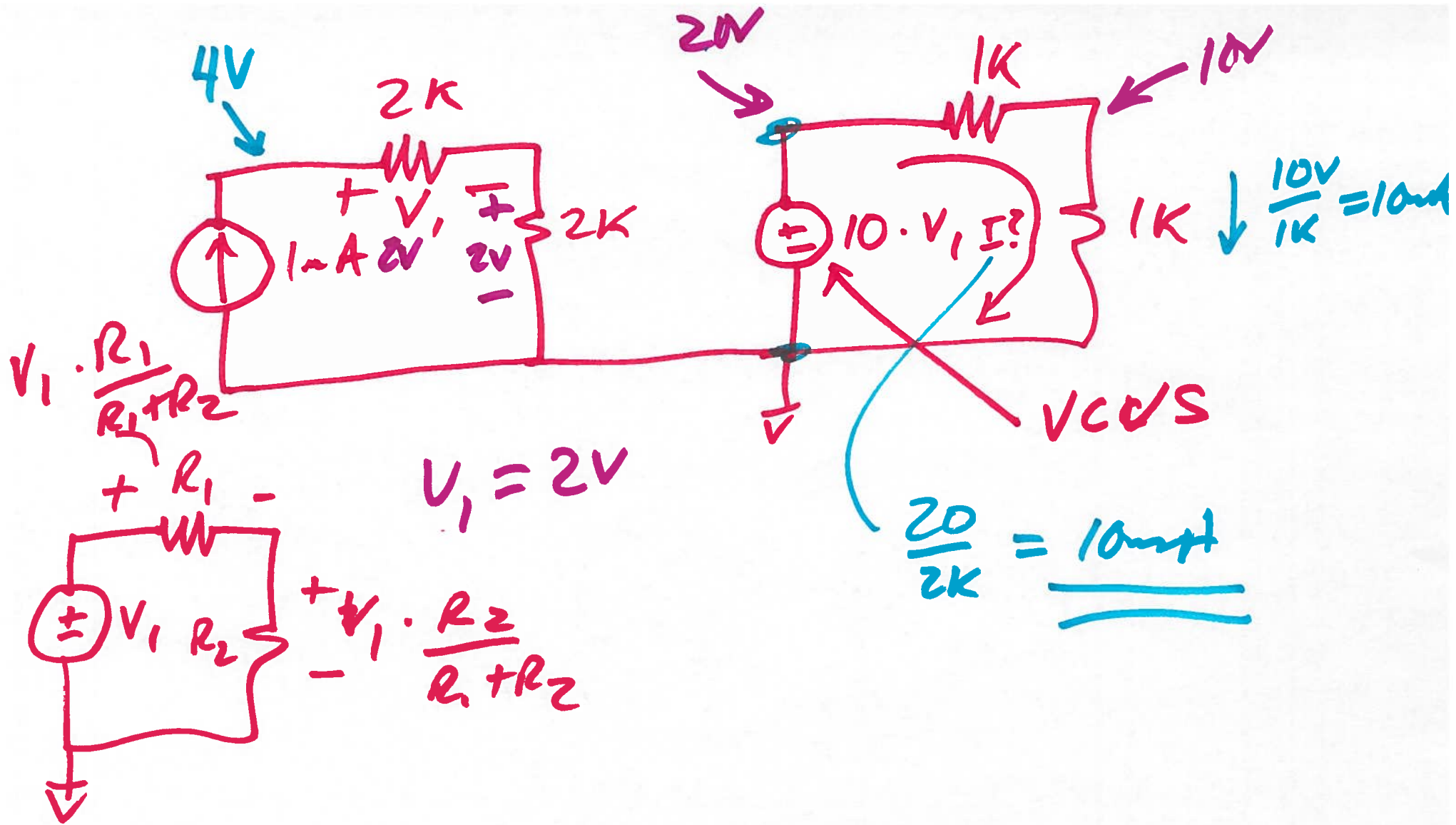
## Lecture 3

Voltage dependent voltage source  
Controlled  
VCVS

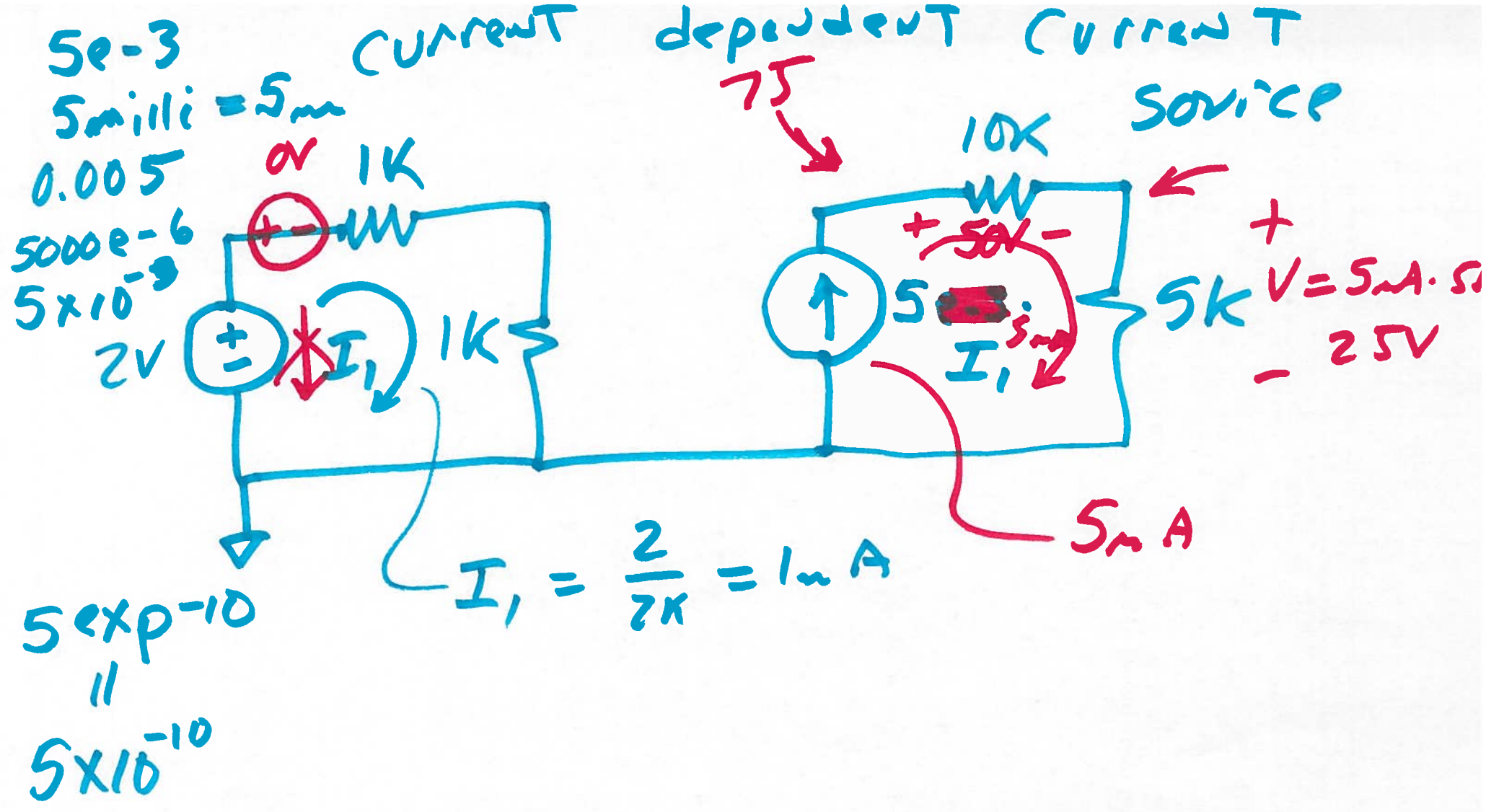


$$\text{⊕} A \cdot V_x = A \cdot (V_1 - V_2)$$

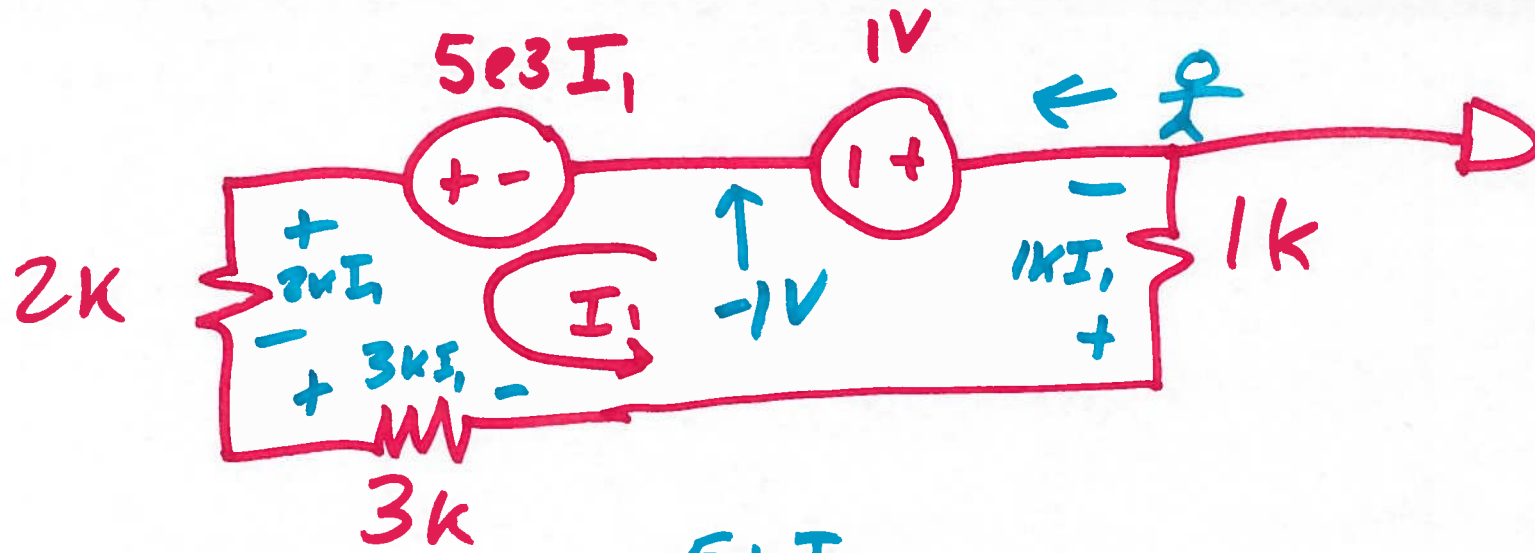
1)



2)



3)

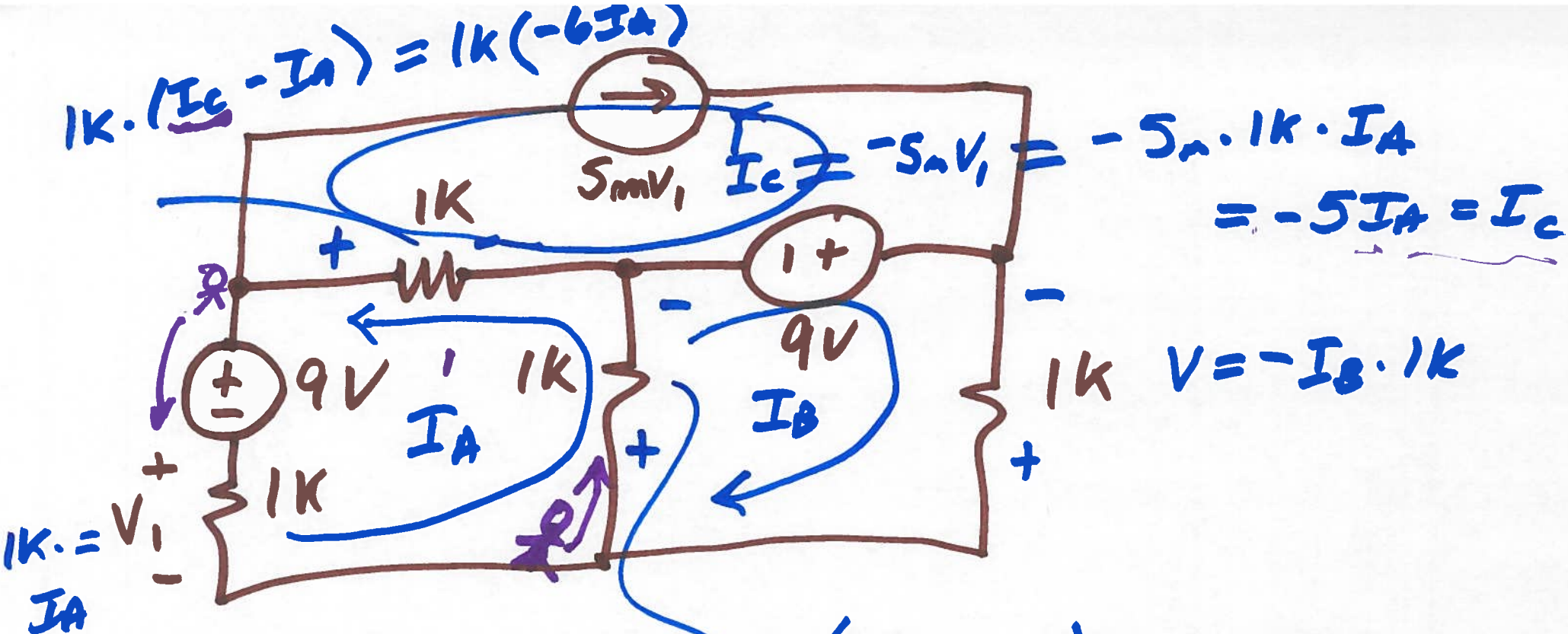


$$-1V + 5e3I_1 - 2kI_1 - 3kI_1 - 1k \cdot I_1 = 0$$

$$-1kI_1 = 1V$$

$$I_1 = -1mA$$

$$1k \cdot (I_c - I_a) = 1k(-6I_a)$$



$$-5mV = -5 \mu \cdot 1k \cdot I_a = -5I_a = I_c$$

$$1k V = -I_b \cdot 1k$$

$$1k \cdot I_a = V_i$$

$$I \uparrow \downarrow R \quad v = IR$$

$$I \downarrow \downarrow R \quad v = -I \cdot R$$

$$1k(I_b + I_a)$$

Loop A

$$-1k(I_b + I_a) + 1k(-6I_a) - 9 - 1kI_a = 0$$

Loop B

$$-1k(I_b + I_a) + 9 + 1k(I_b) = 0$$

5)