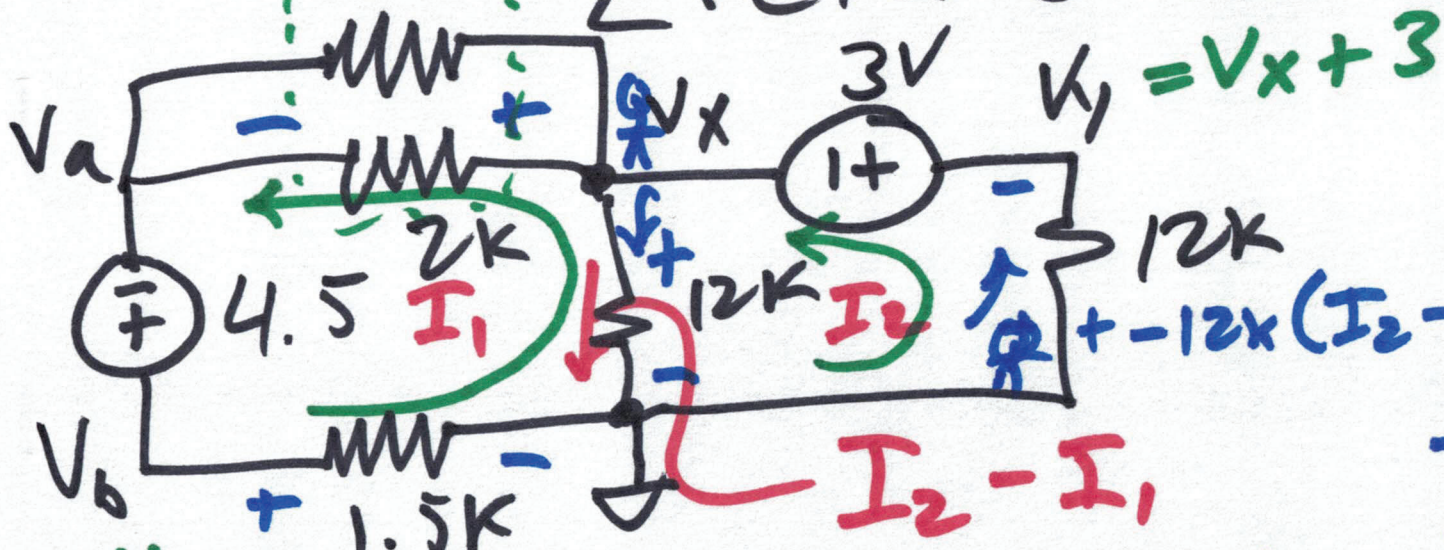


EE 220

# CIRCUITS I

$\frac{1k}{s} +$  OCT. 2, 2023

2k Lecture 10

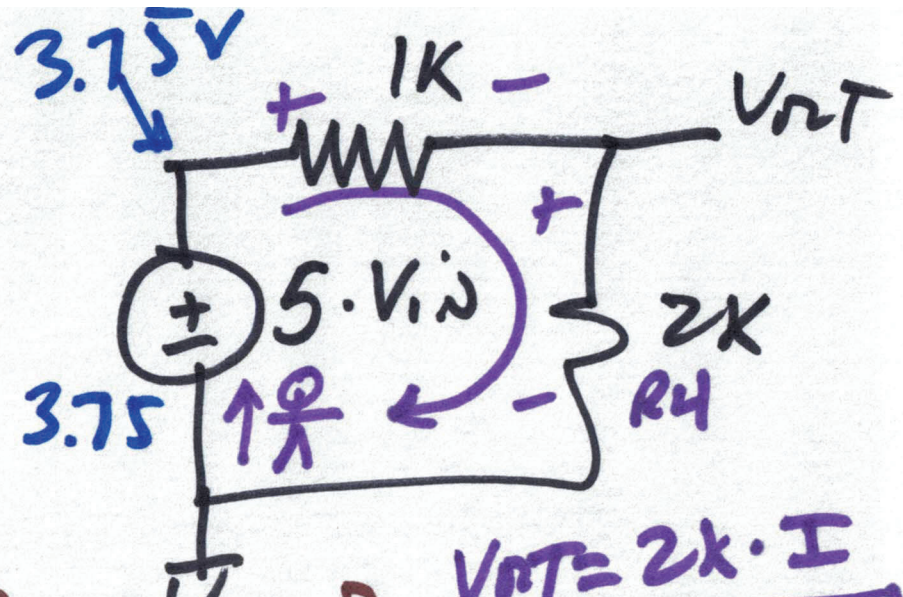
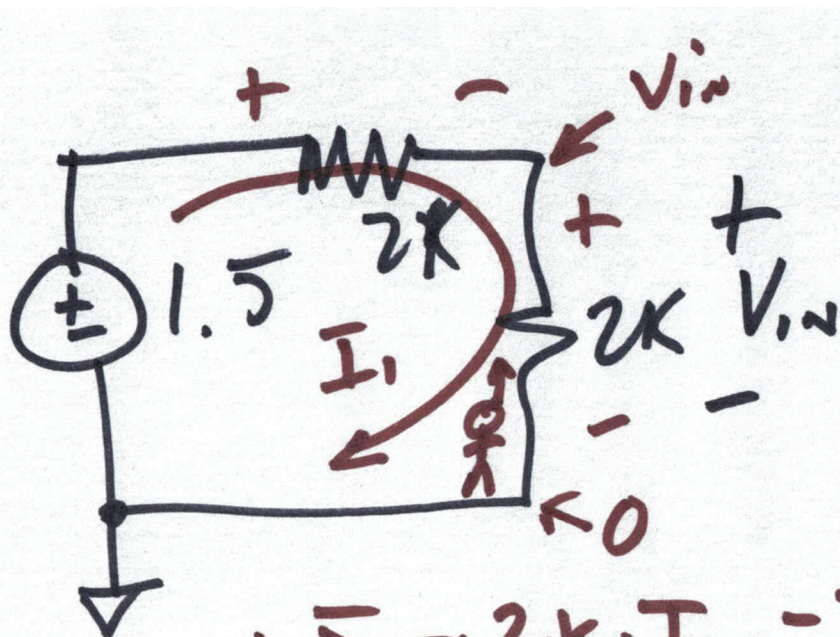


$V_b = V_a + 4.5$

$+ -12k(I_2 - I_1) - 12kI_2 - 3 = 0$  ②

$-12k(I_2 - I_1) + 1.5kI_1 - 4.5 + 1k(I_1) = 0$  ①





$$1.5 - 2k \cdot I_1 - 2k I_1 = 0$$

$$V_{out} = 2k \cdot I_1$$

$$V_{out} = \frac{2k}{3k} \cdot 3.75$$

$$V_{out} = \frac{2k}{2k+1k} \cdot 3.75 I_1 = \frac{1.5k}{4k} I_1$$

$$= \frac{2}{3} \cdot 3.75$$

$$+ 2k I_1 = V_{in}$$

$$V_{in} = \frac{2k}{4k} \cdot 1.5V$$

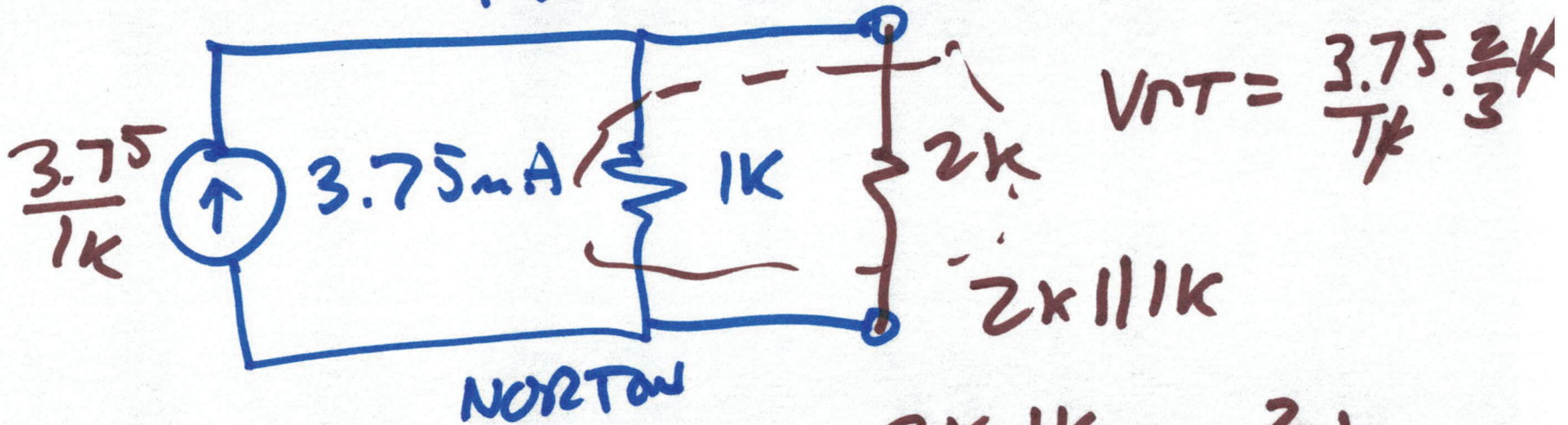
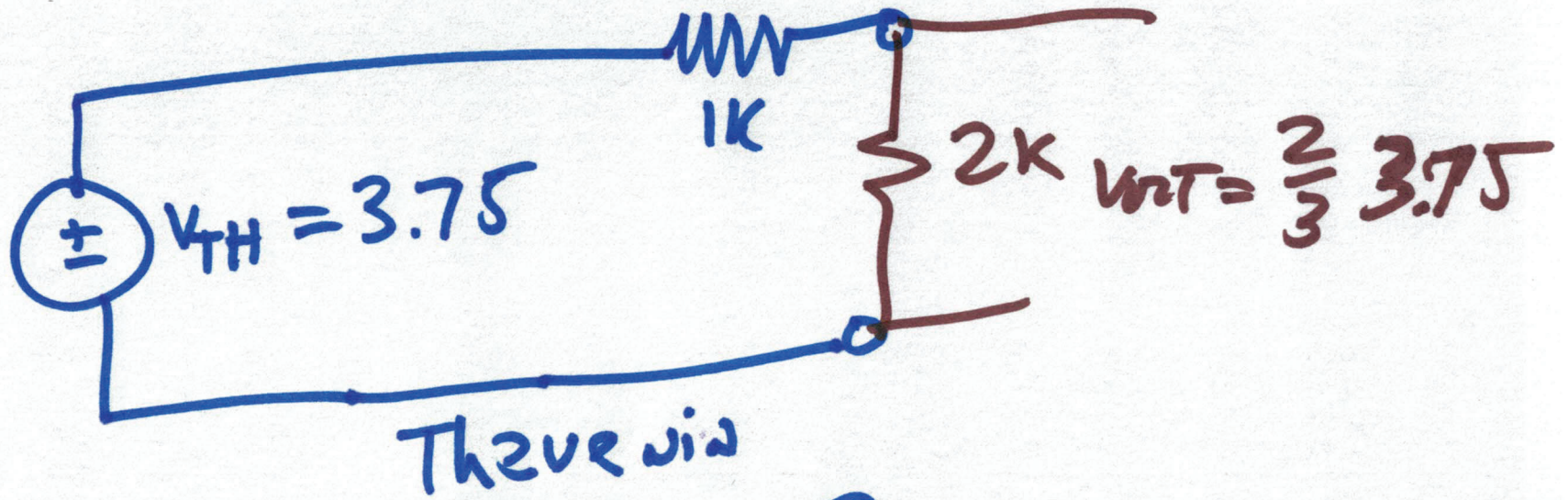
$$V_{in} = .75V$$

$$3.75 - 1k I_1 - 2k I_1 = 0$$

$$I_1 = \frac{3.75}{3k}$$

2)

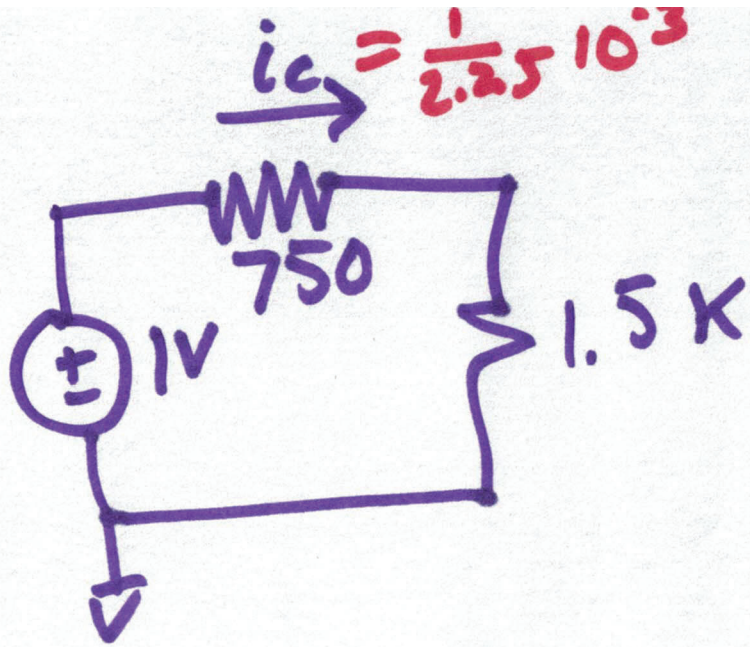




$$\frac{2k \cdot 1k}{2k + 1k} = \frac{2}{3} k = 666 \Omega$$



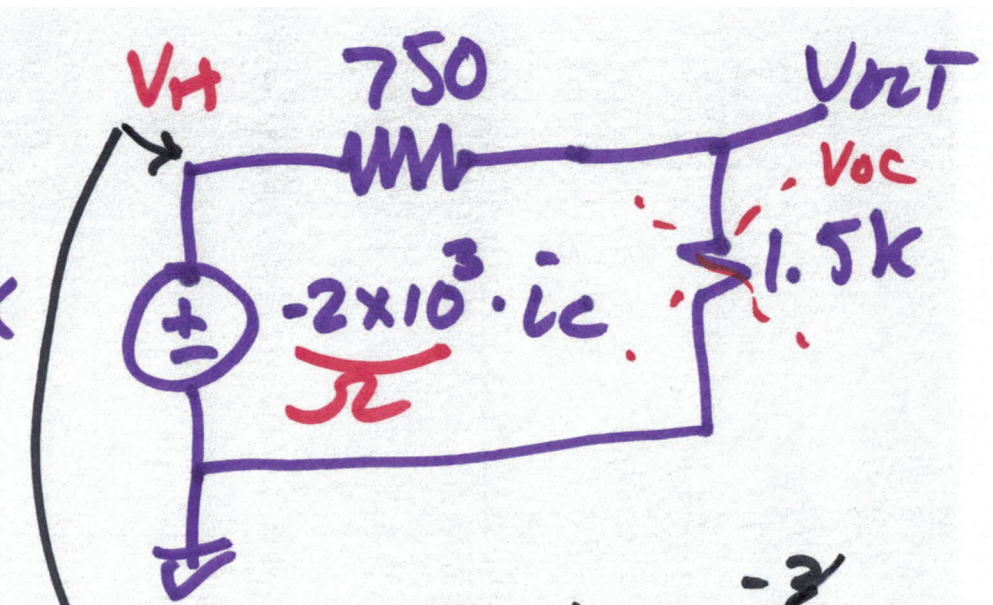
a  
b/c



a  
b.c

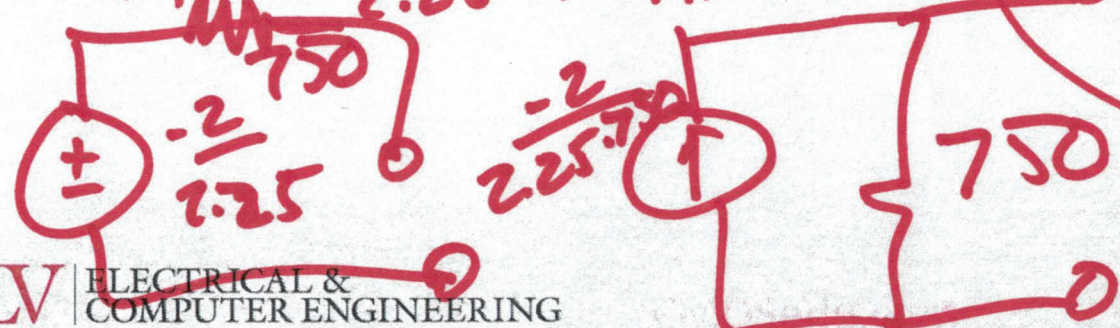
$$i_c = \frac{1V}{2.25K}$$

$$V_H = -2 \times 10^3 \cdot \frac{1}{2.25} \cdot 10^{-3}$$



$$V_{AUF} = \frac{-2}{2.25} \cdot \frac{1.5K}{2.25K} = \frac{-3}{(2.25)^2}$$

$$V_{OC} = V_{TH} = \frac{-2}{2.25} \quad R_{TH} = 750$$



$$V_H = \frac{-3}{(2.25)^2}$$