

Lecture 22

July 10, 2014

EE 220

LAST lecture

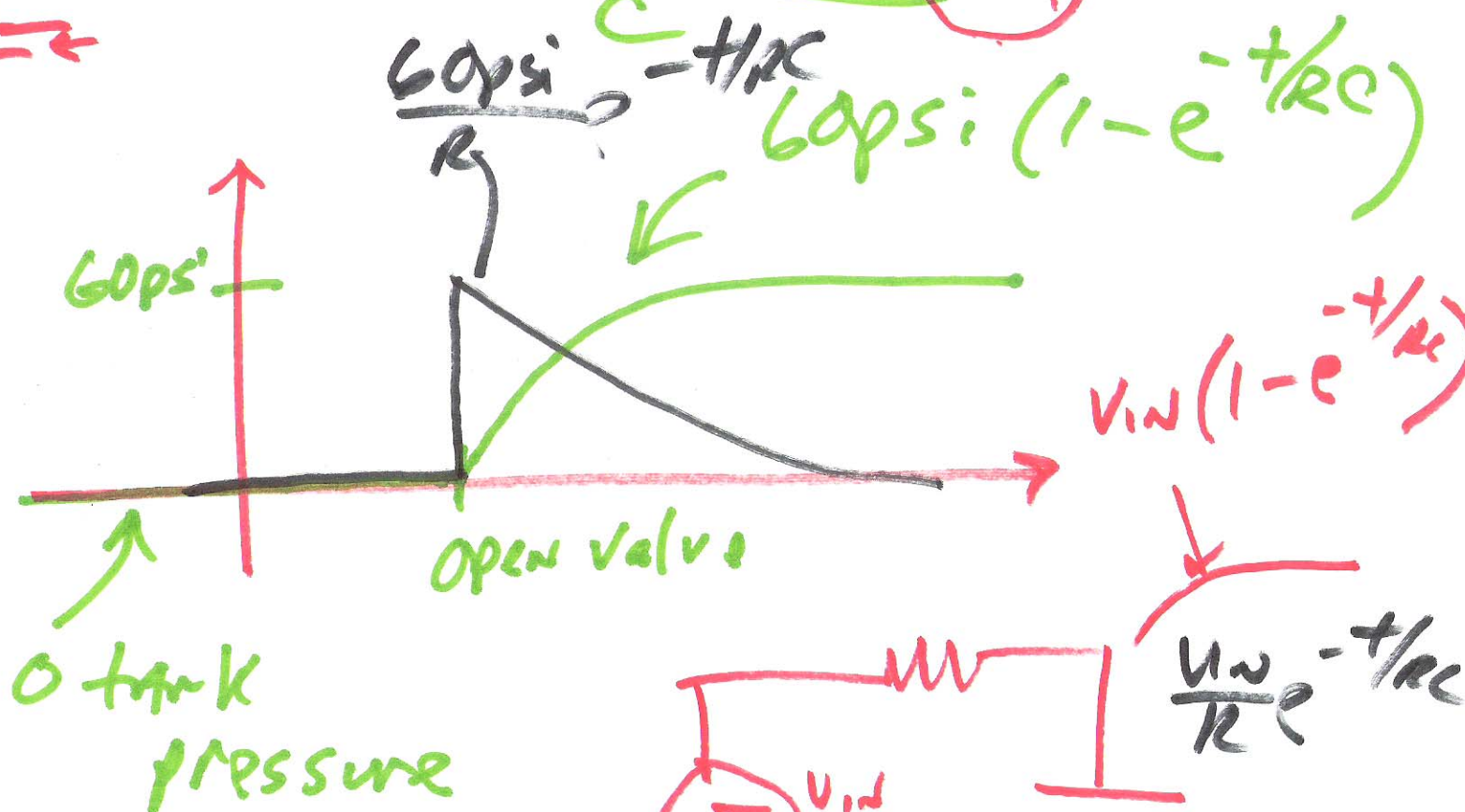
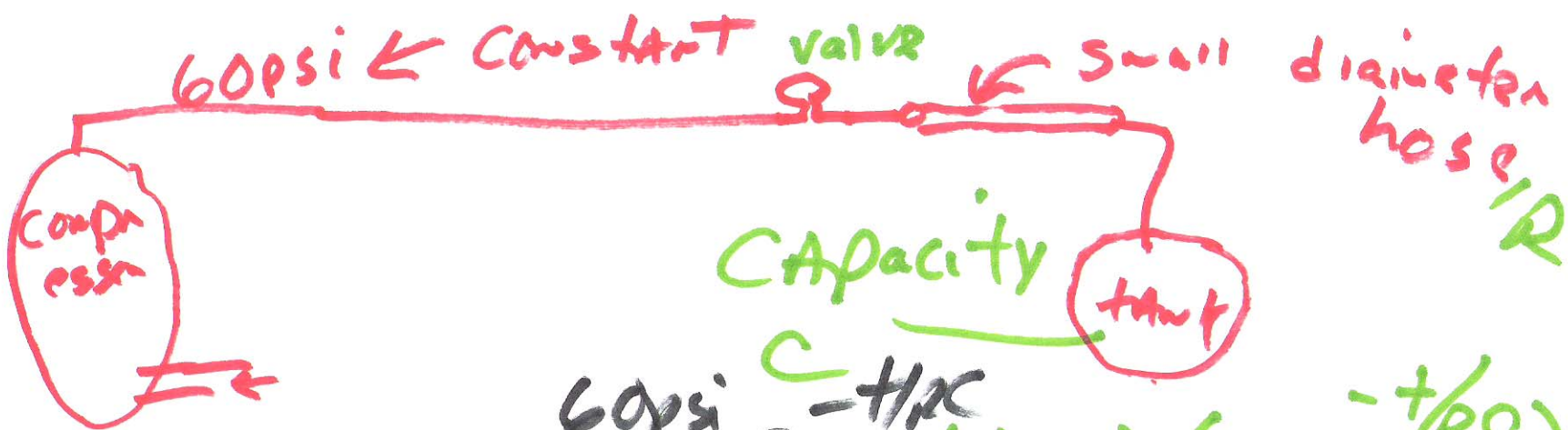
what to study

practice test

↓

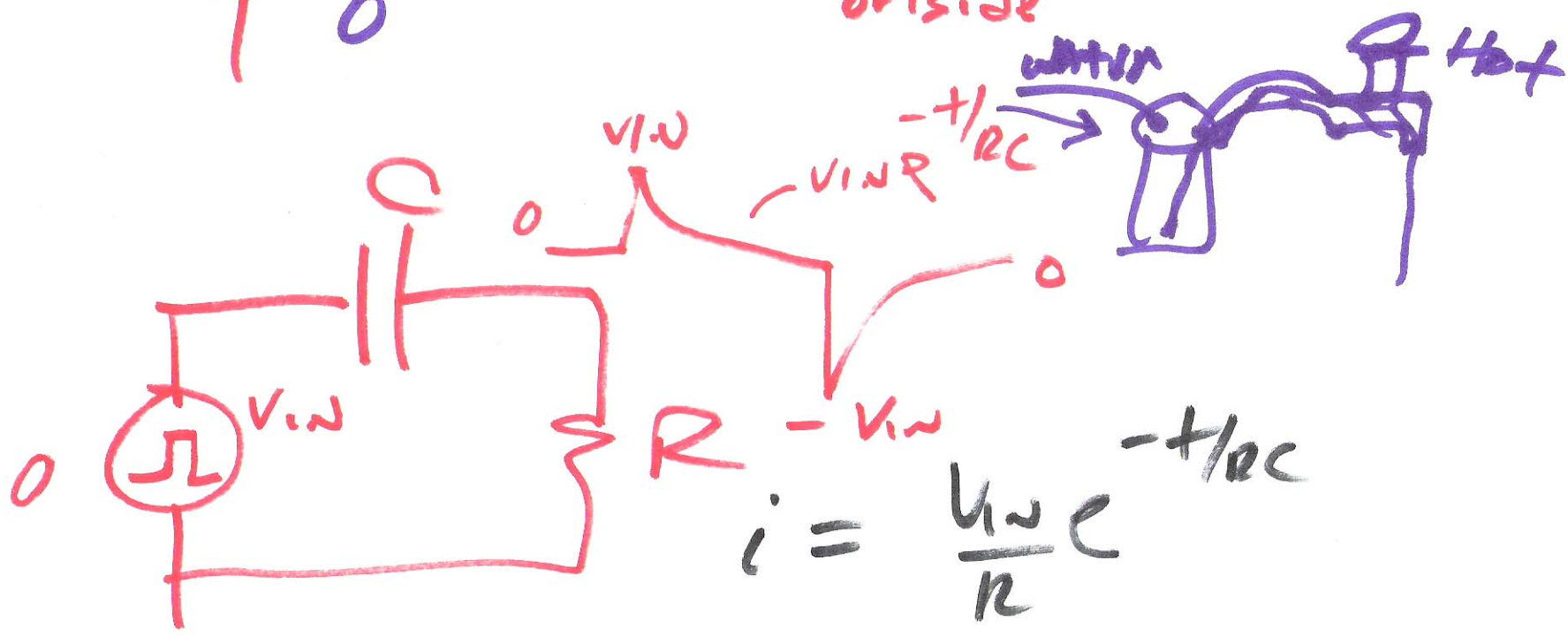
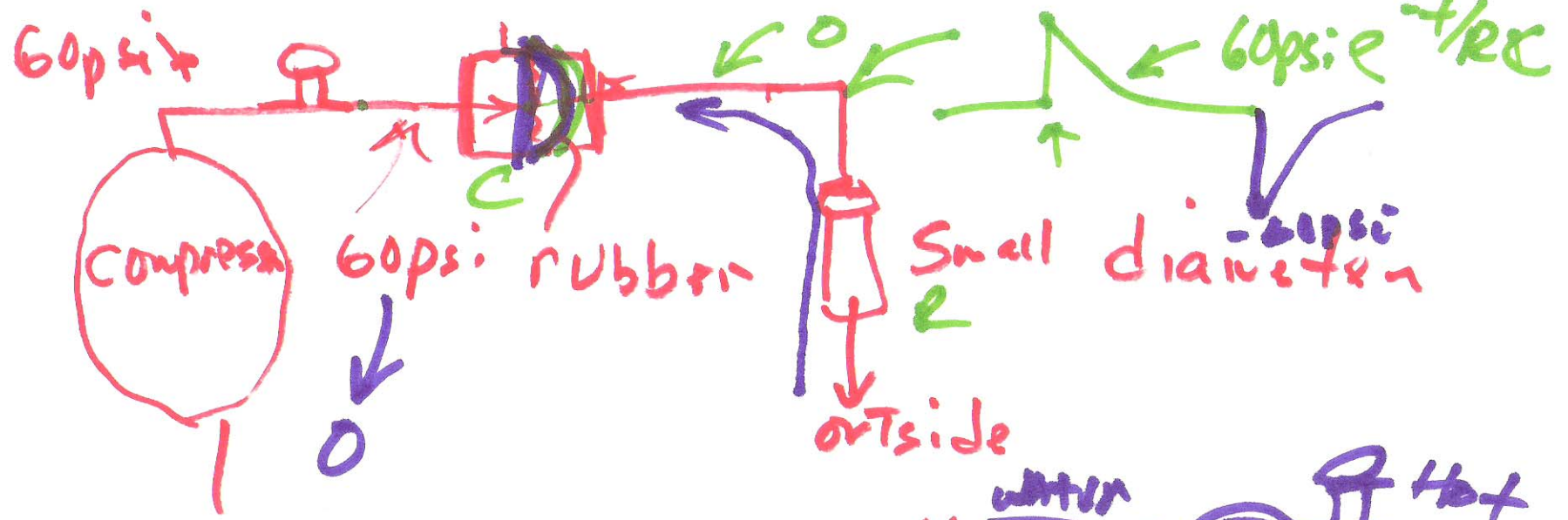
H.W. #19

1)

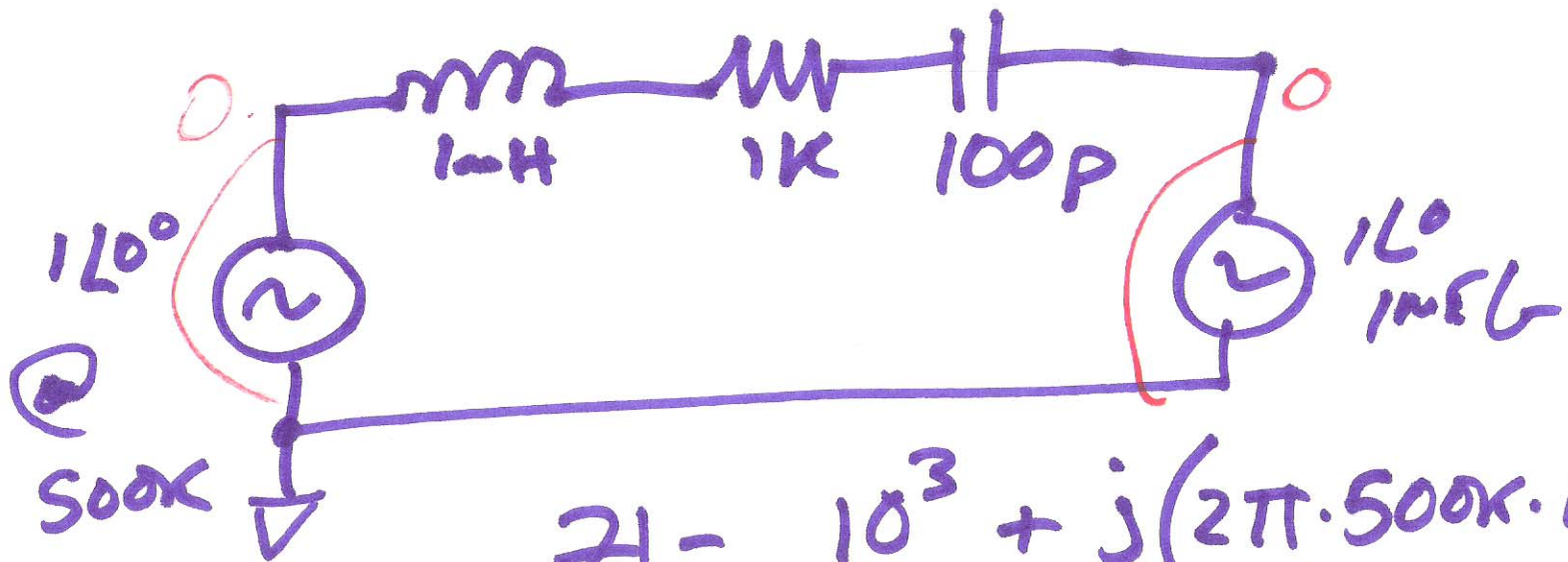


a)

2)



3)



$$Z = 10^3 + j \left(2\pi \cdot 500k \cdot 10^{-3} - \frac{1}{2\pi \cdot 500k \cdot 10^{-10}} \right)$$

$$I_{500k} = \frac{120^\circ - 0}{1000 + j(-45)} \quad \angle \tan^{-1} \frac{-45}{1000}$$

$$= \frac{120^\circ}{1k \angle -4.5^\circ} = 10^3 + j(3140 - 3185)$$

$$= 1mA \angle 2.6^\circ \quad Z_{1mEL} = 10^3 + j(6280 - 1592)$$

$$= 1mA \sin \left(2\pi \cdot 500k t + \frac{2.6 \cdot 2\pi}{360} \right) \quad 4688$$

4)

$$|I_{inFB}| = \left| \frac{0 - 1 \angle 0^\circ}{10^3 + j4688} \right| = \frac{1 \angle 158^\circ}{4793 \angle 78^\circ}$$

$$= \underline{\underline{208.64 \angle 102^\circ}}$$

$$= 208.64 \sin\left(2\pi \cdot 10^6 \cdot t + \frac{102 \cdot 2\pi}{360}\right)$$

↑
Current due 1MHz voltage source!