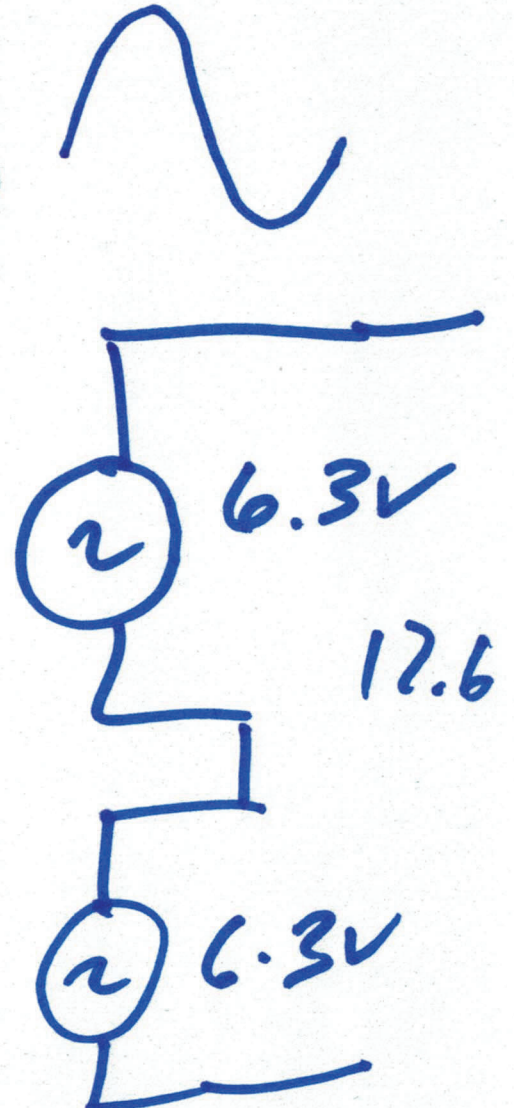
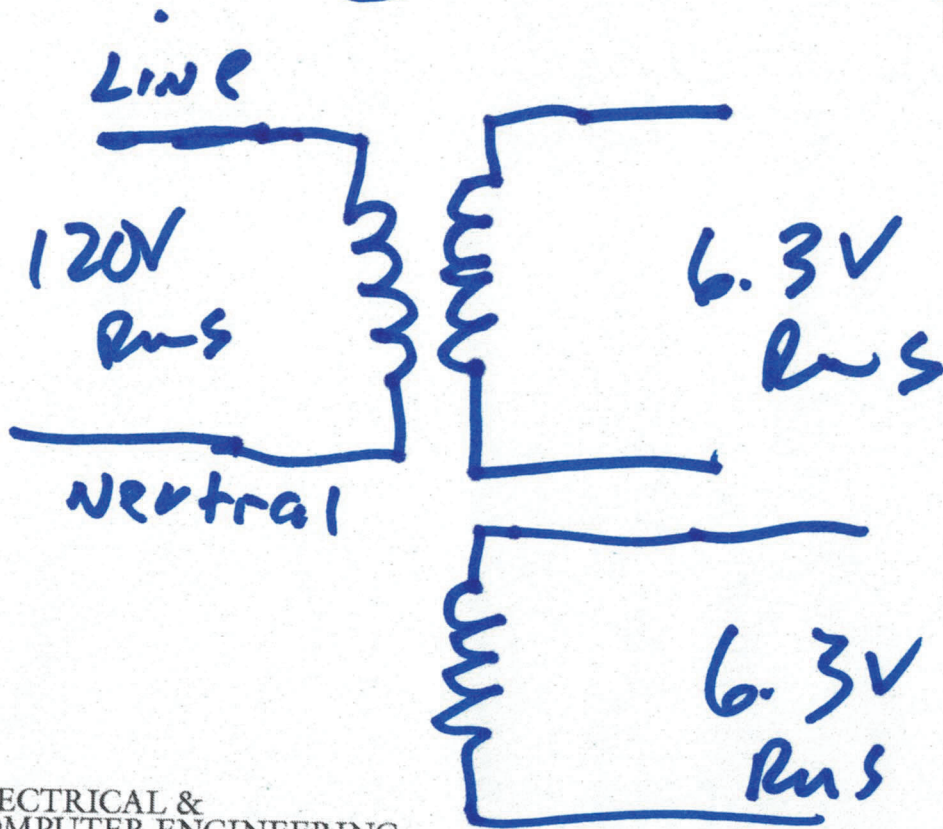


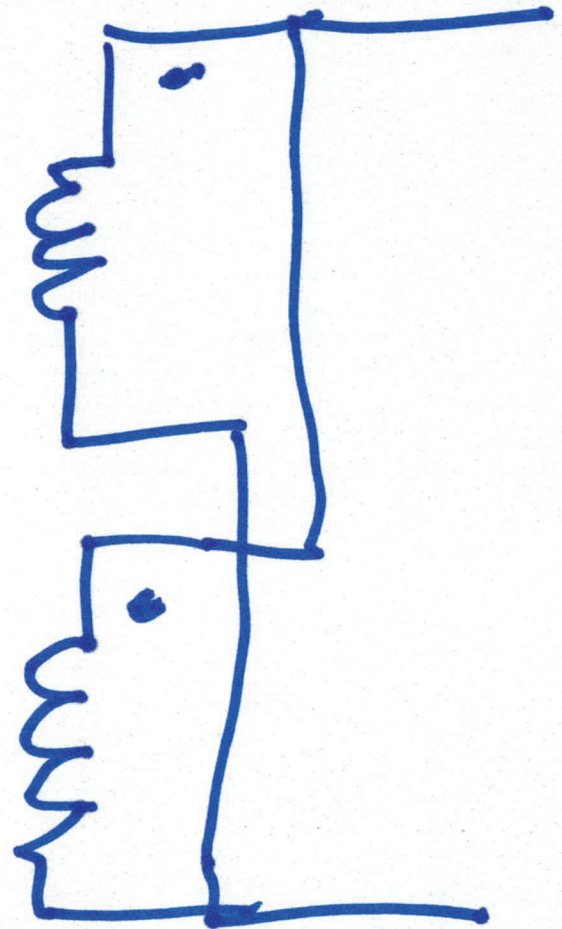
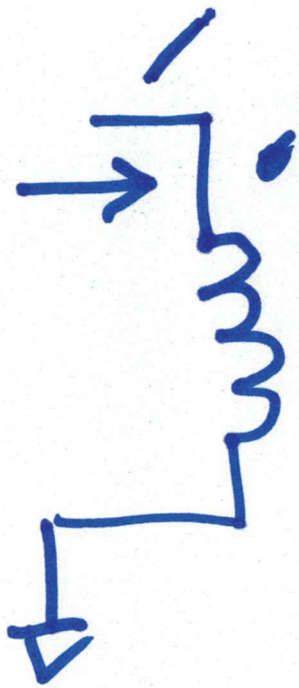
EE 220 Circuits 1

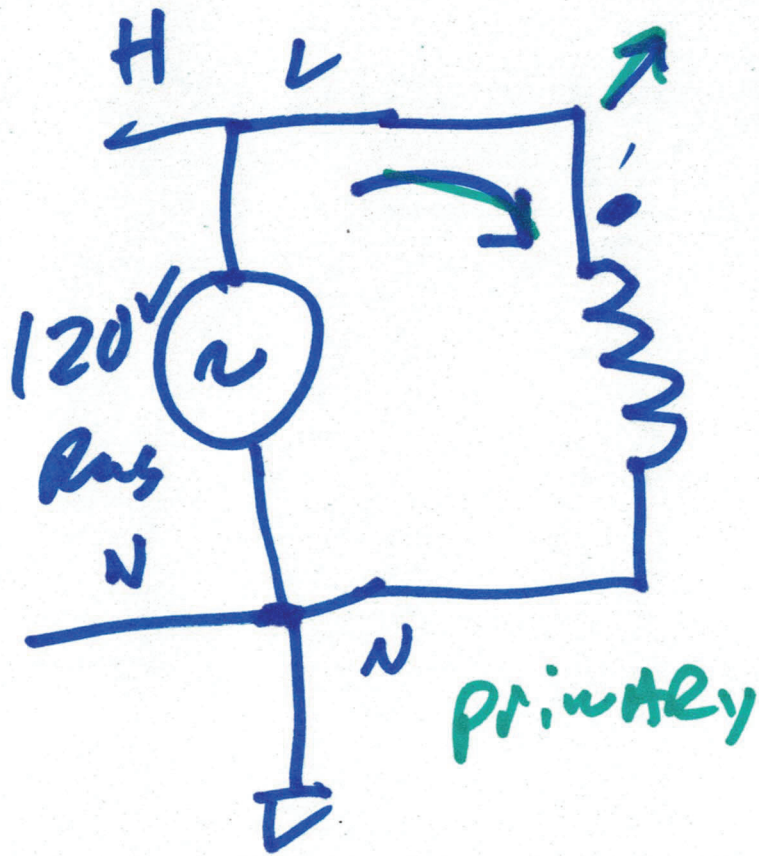
Nov. 30, 2020

Lecture ~~26~~
26



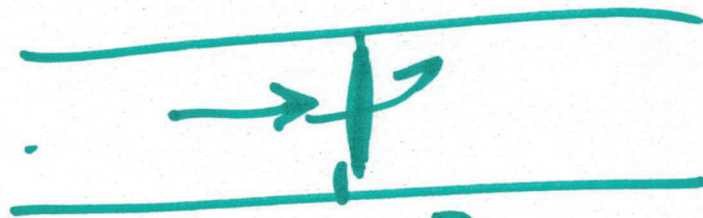
1)





→
→
DT
diode

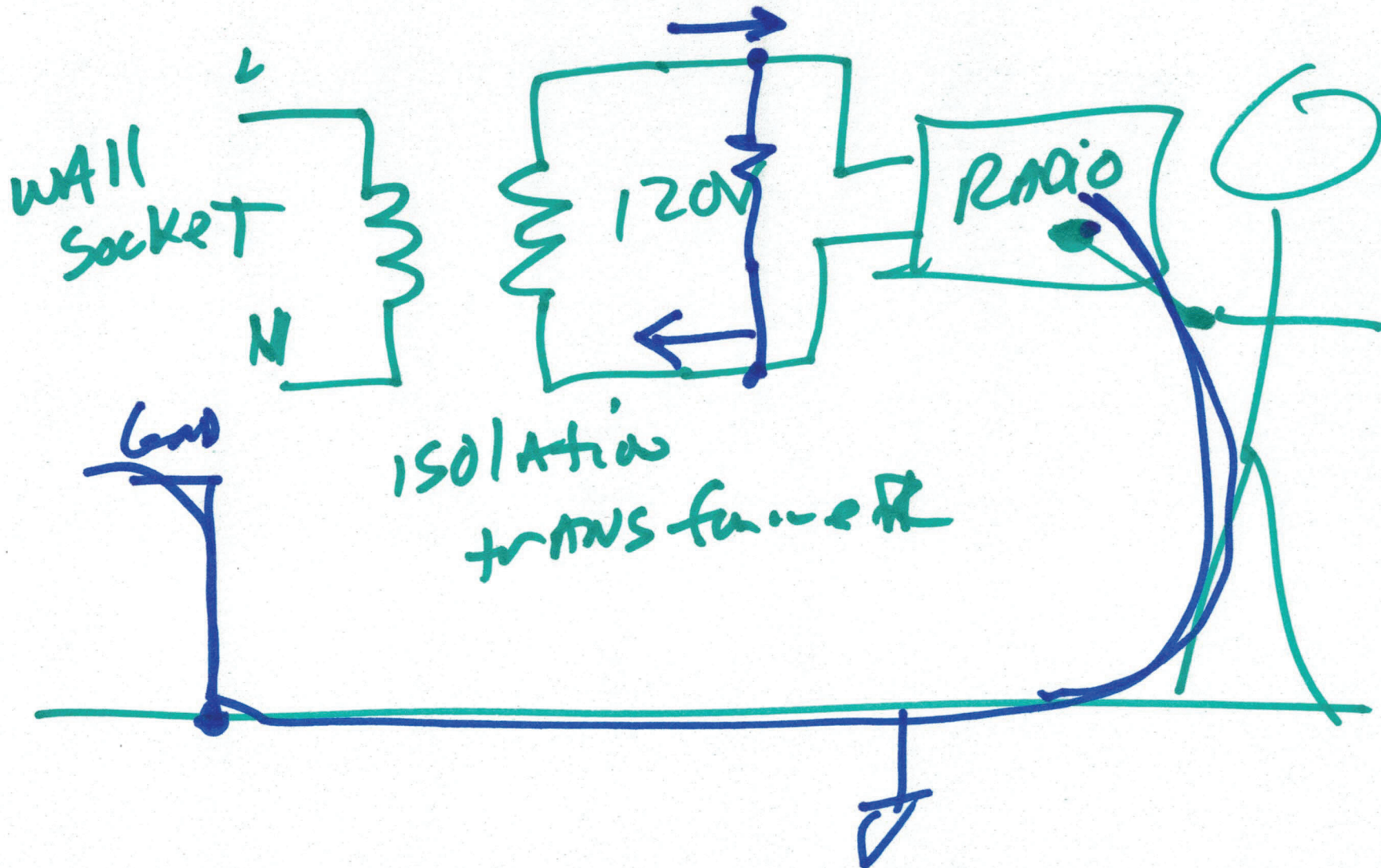
$$V_{rms} = \frac{V_p}{\sqrt{2}}$$

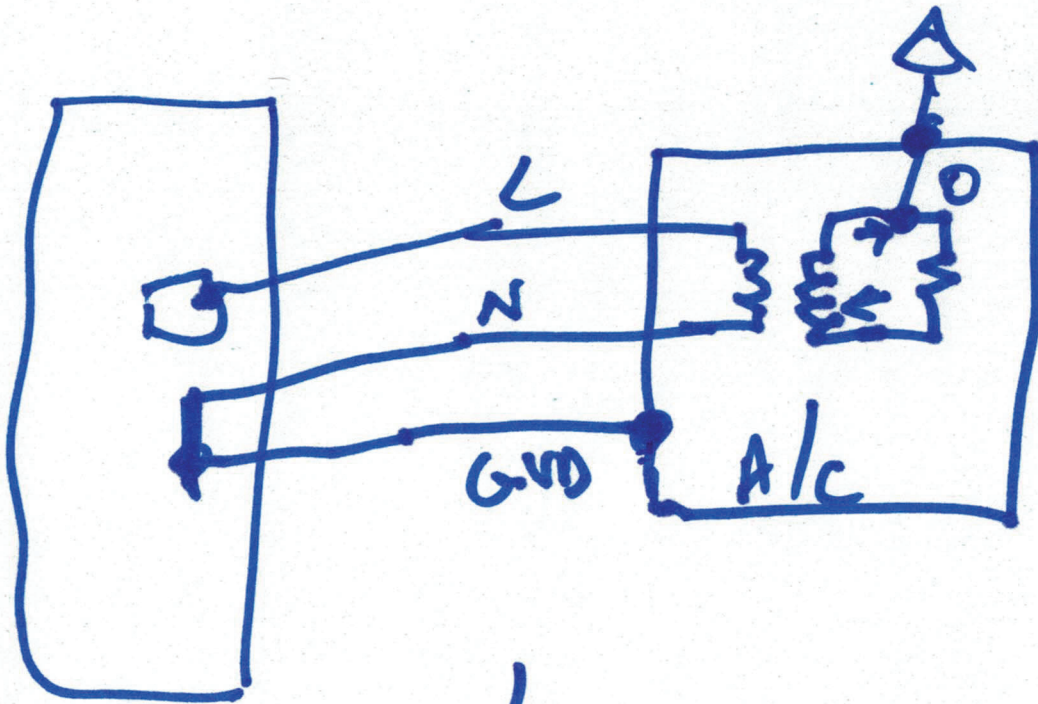


$$6.3 \cdot \sqrt{2} = 4 \cdot 1.7$$

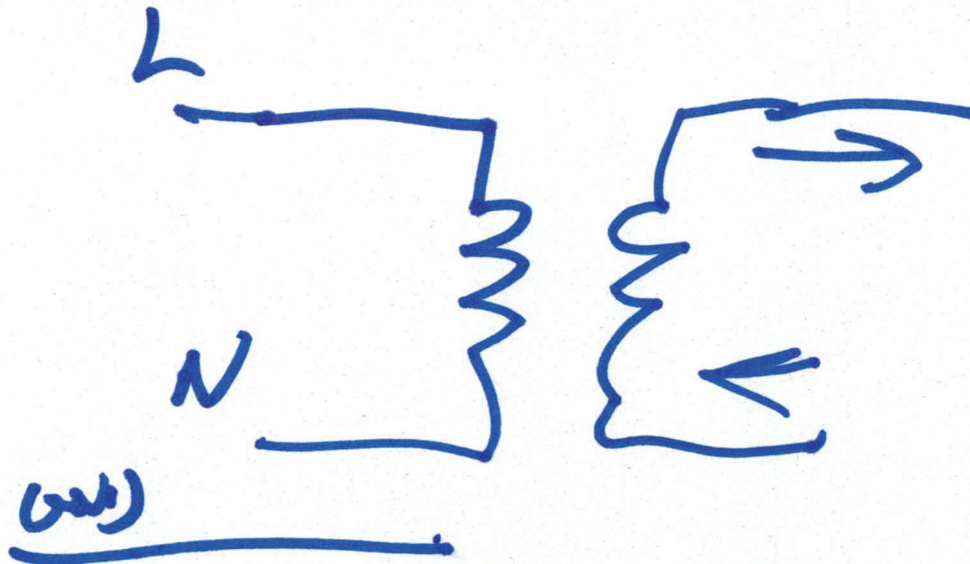


4)

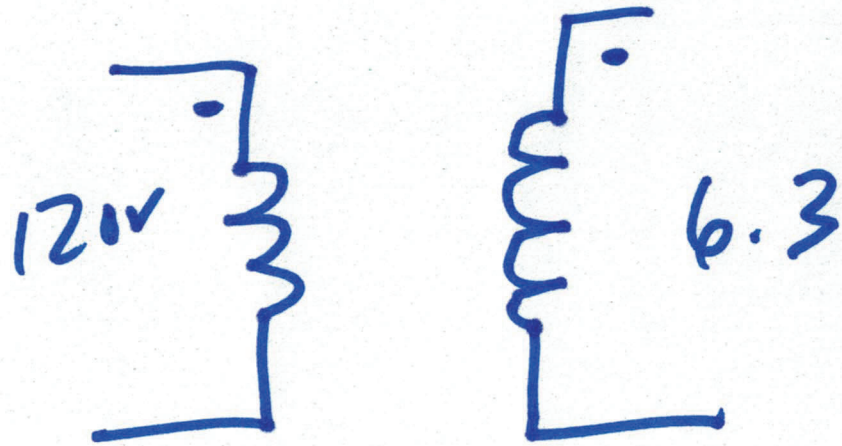




Safety is important



c)



$$\frac{V_1}{I_1} = \frac{L_1}{L_2} \cdot \frac{V_2}{I_2}$$

$$\frac{120}{6.3} = \sqrt{\frac{L_1}{L_2}}$$

$L_2 = 1 \mu H$

$$L_1 = L_2 \cdot 3628$$

$$L_1 = 362.8 \mu H$$

$$L_1 = 362.8 \cdot 185 \mu H$$

$$V = \omega L I \cdot I$$

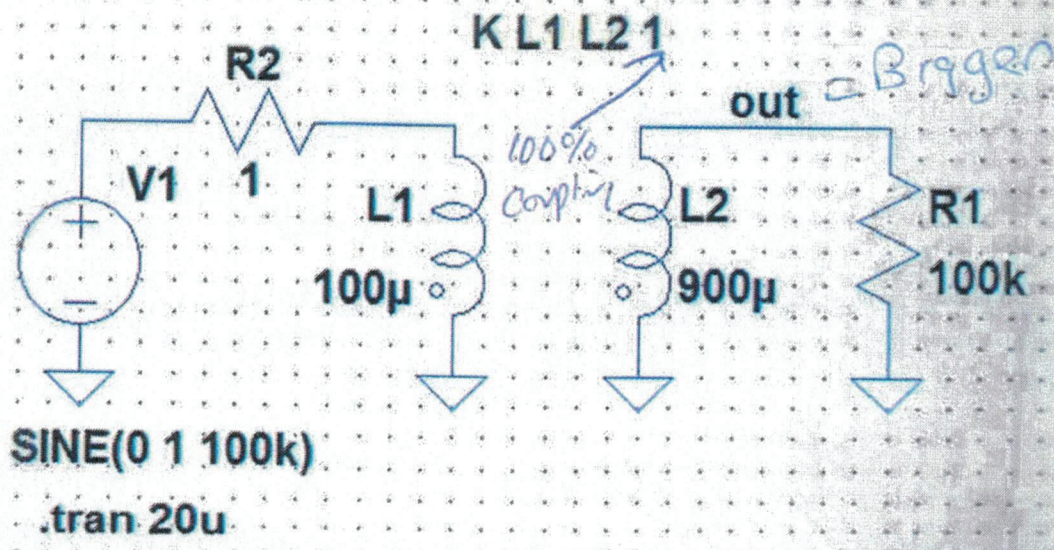
$$6.3 = 2\pi 60 \cdot L_2 \cdot 0.09$$

$$\frac{120}{6.3} = \frac{6.3}{.09} \cdot \frac{L_1}{L_2}$$

$$V_1 I_1 = V_2 I_2$$

$$I_1 = \frac{V_2 I_2}{V_1}$$

7) $L_1 = 67 \mu H$ $6.3 = 2\pi 60 \cdot L_2 \cdot 0.09$



1:3 turns ratio
1:9 inductor ratio

$$\frac{V_1}{V_2} = \frac{N_1}{N_2} = \sqrt{\frac{L_1}{L_2}} = \frac{1}{N}$$

$$\frac{I_1}{I_2} = \frac{N_2}{N_1} = \sqrt{\frac{L_2}{L_1}} = N$$

$$\frac{V_1}{I_1} = \frac{V_2}{I_2} \cdot \frac{N_1^2}{N_2^2} = \frac{V_2}{I_2} \cdot \frac{1}{N^2} = \frac{L_1}{L_2} \cdot \frac{V_2}{I_2}$$

(R1)
(R2)