

Lecture 16

July 1, 2014

EE 220

+10 → 20dB

Summer

$$\frac{V_{out}}{V_{in}} = -10$$

↓
20dB

$$.001 = 10^{-3}$$

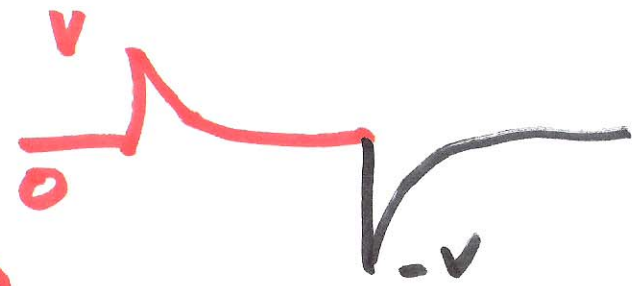
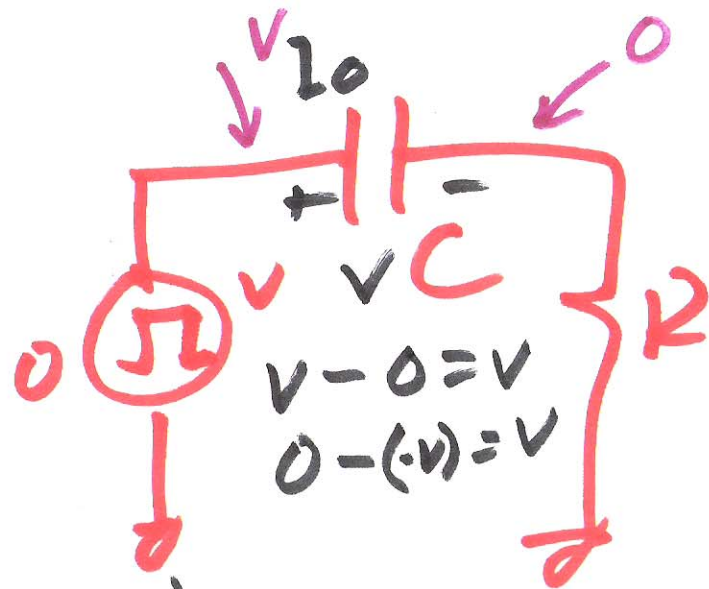
$$20 \log 10^{-3} = -60 \text{dB} \rightarrow \frac{1}{1000}$$

$$\frac{1}{5} \rightarrow -14 \text{dB}$$

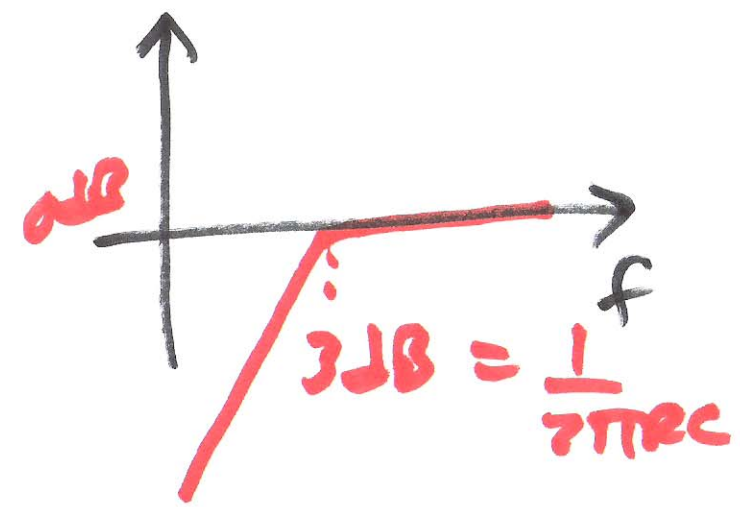
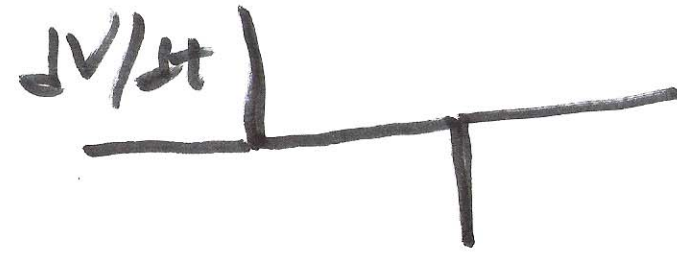
$$\frac{1}{\sqrt{2}} \rightarrow -3 \text{dB}$$

$$\frac{1}{10} \rightarrow -20 \text{dB}$$

$$\frac{1}{2} \rightarrow -6 \text{dB}$$



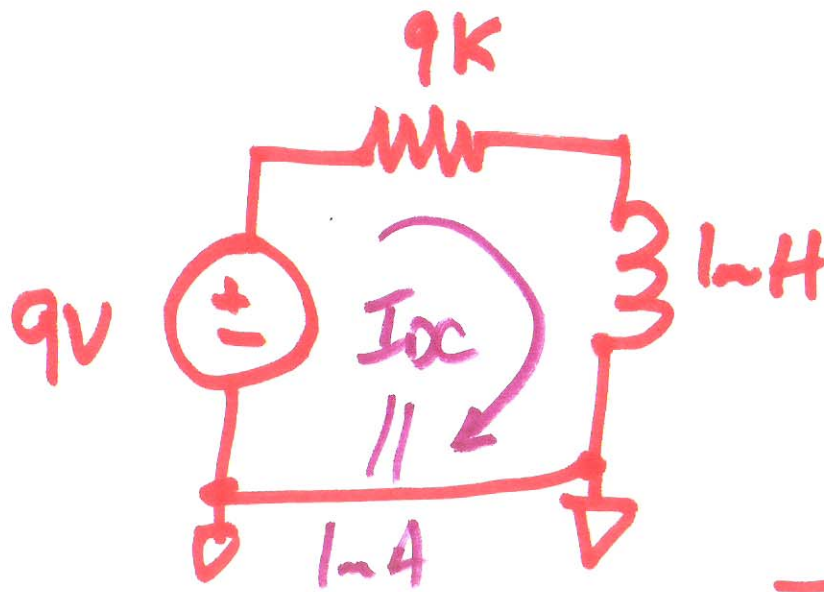
differentiator
high-pass filter



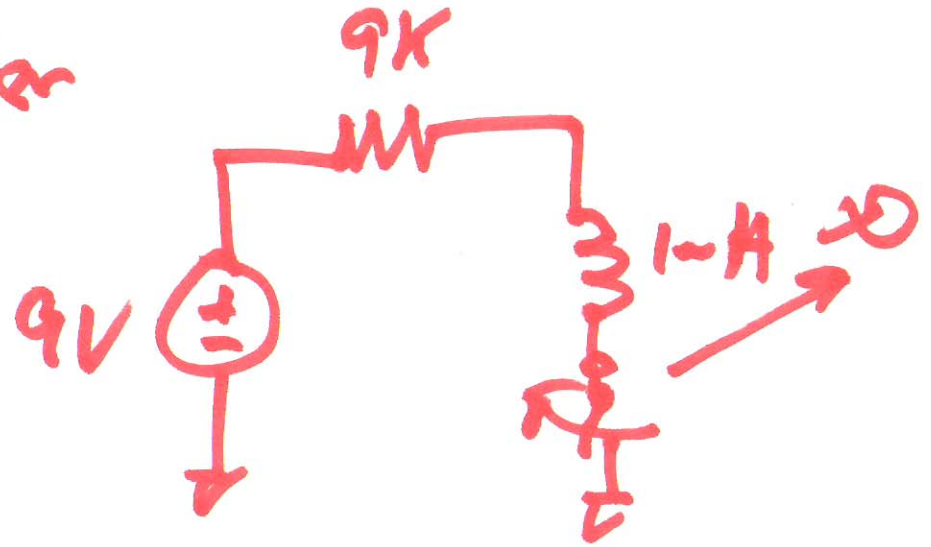
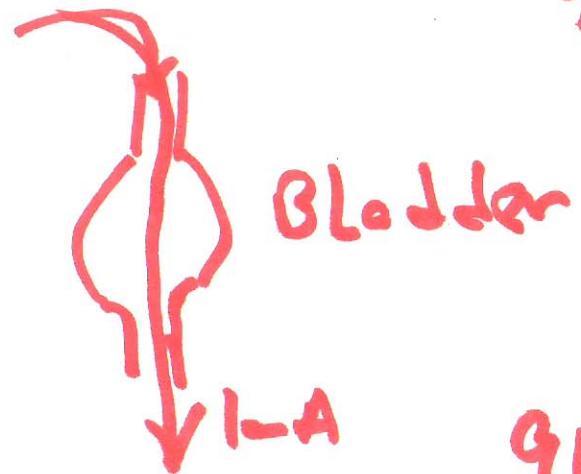
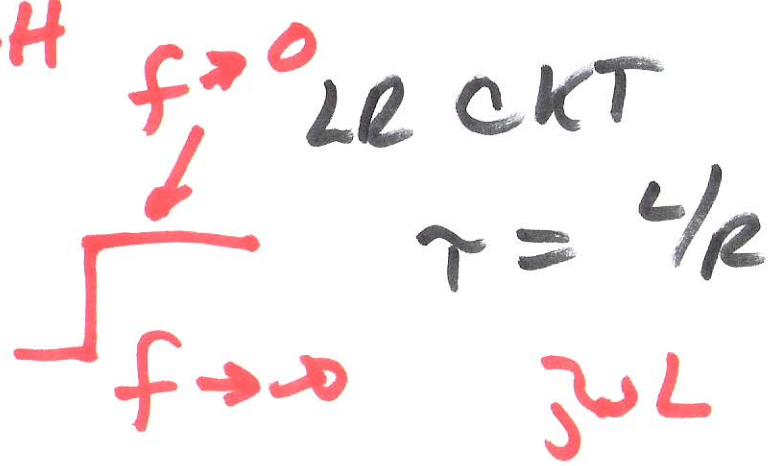
$$X = \frac{1}{j \cdot 2\pi f C}$$

at DC $f = 0$

2)

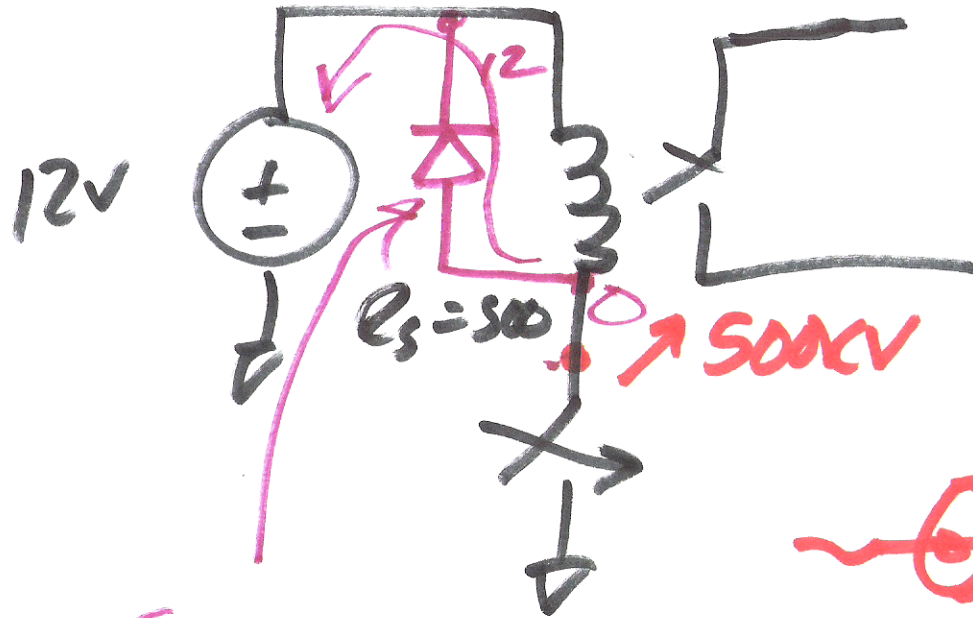


RC CKT
 $\tau = RC$ (seconds)

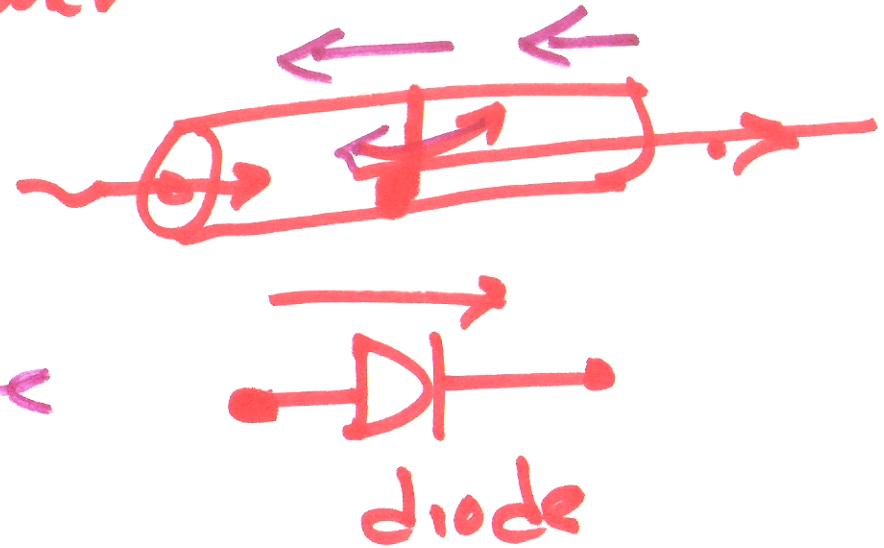


3)

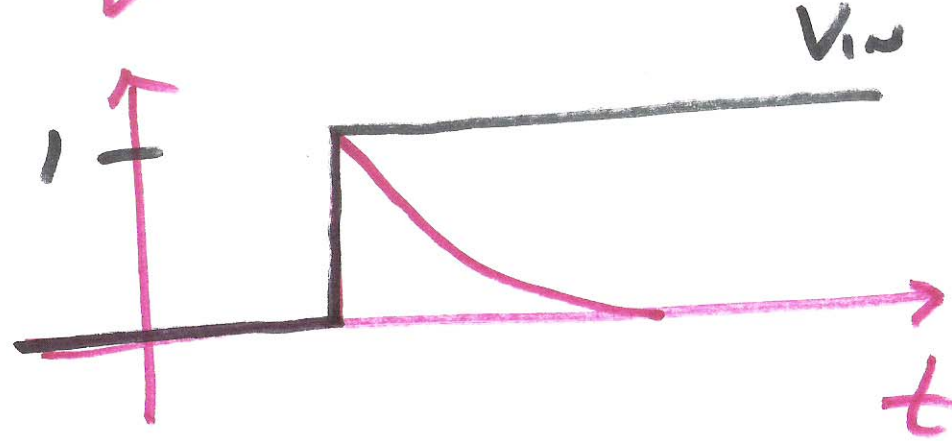
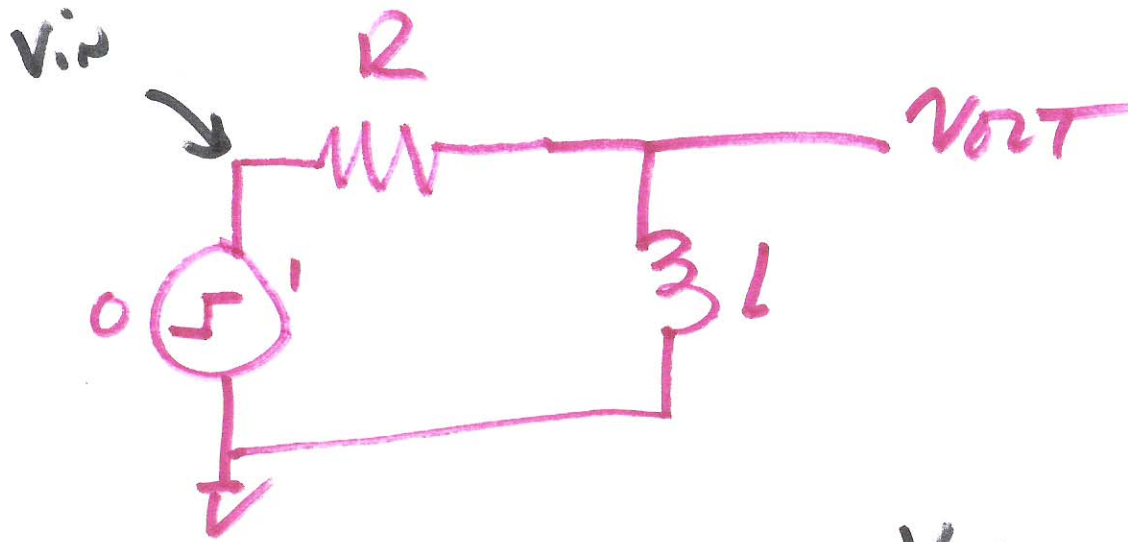
Relay



Free-wheeling diode



4)



5)