ECE 5/472 Power Electronics

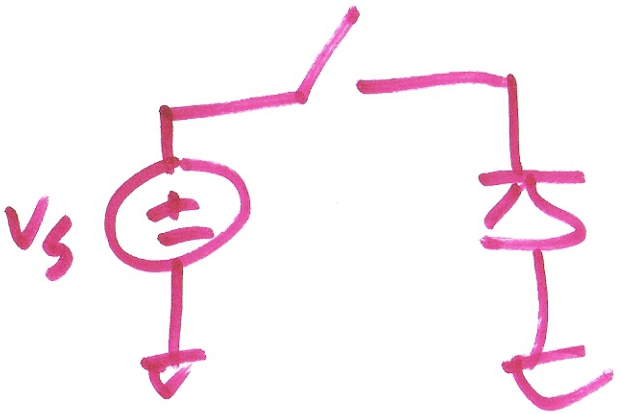
BOISE STATE UNIVERSITY

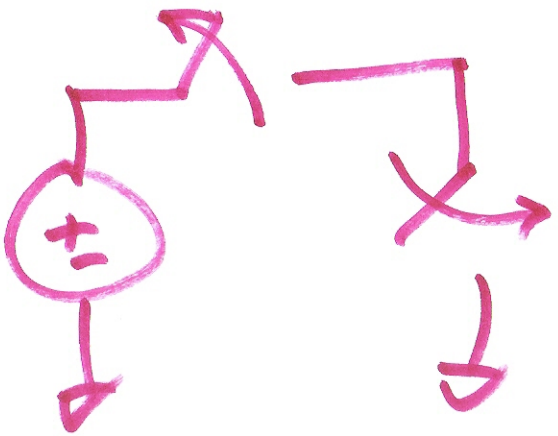
Lecture 10

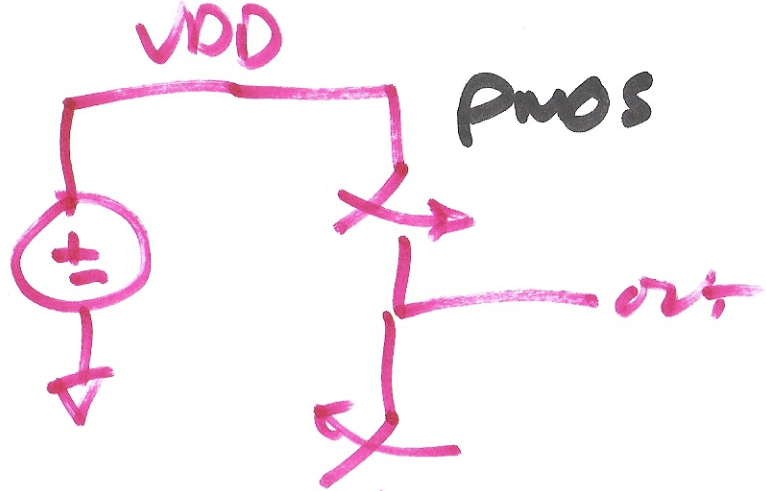
Sept. 17, 2010

$V_{out} = 0 \cdot VDD$

$3 = .6 \cdot 5$

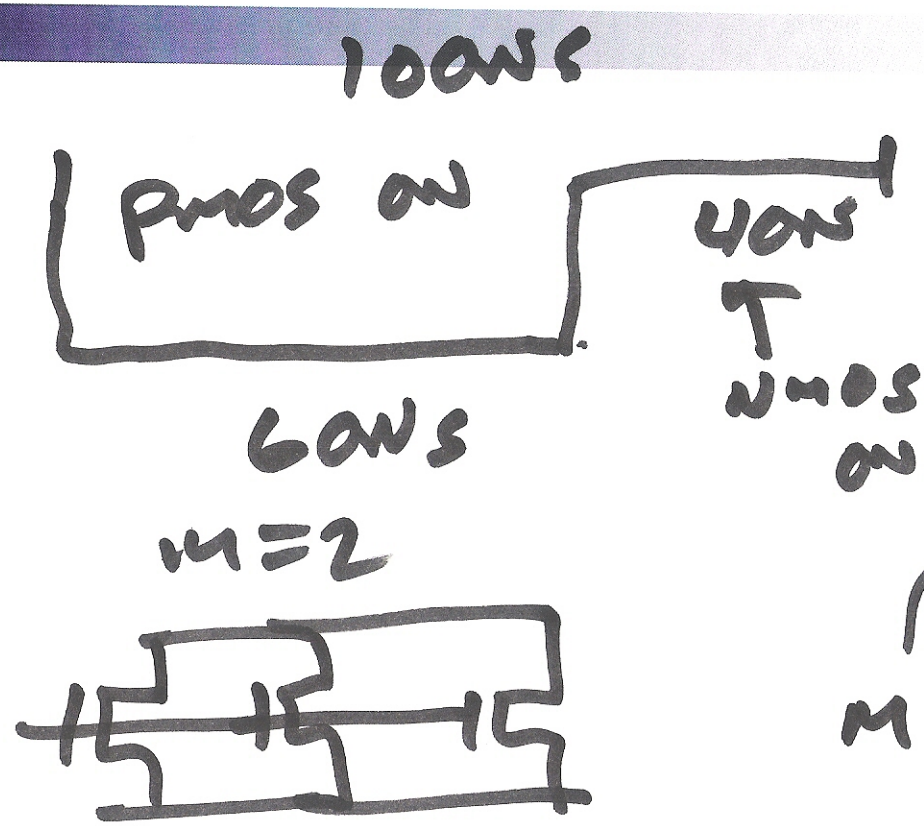


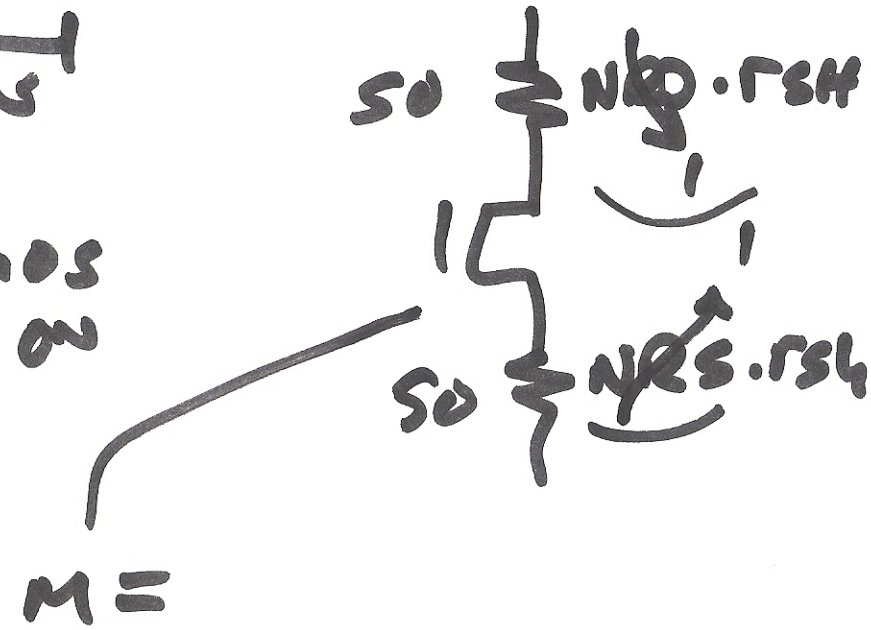


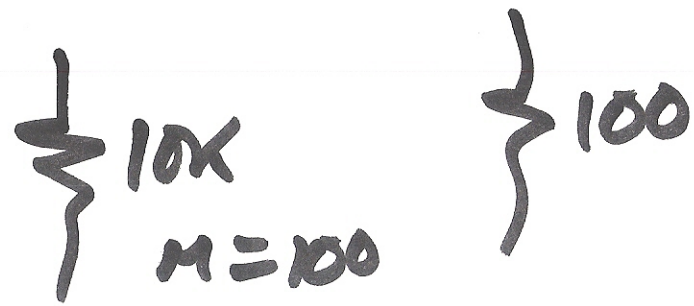


3V @ 1mA

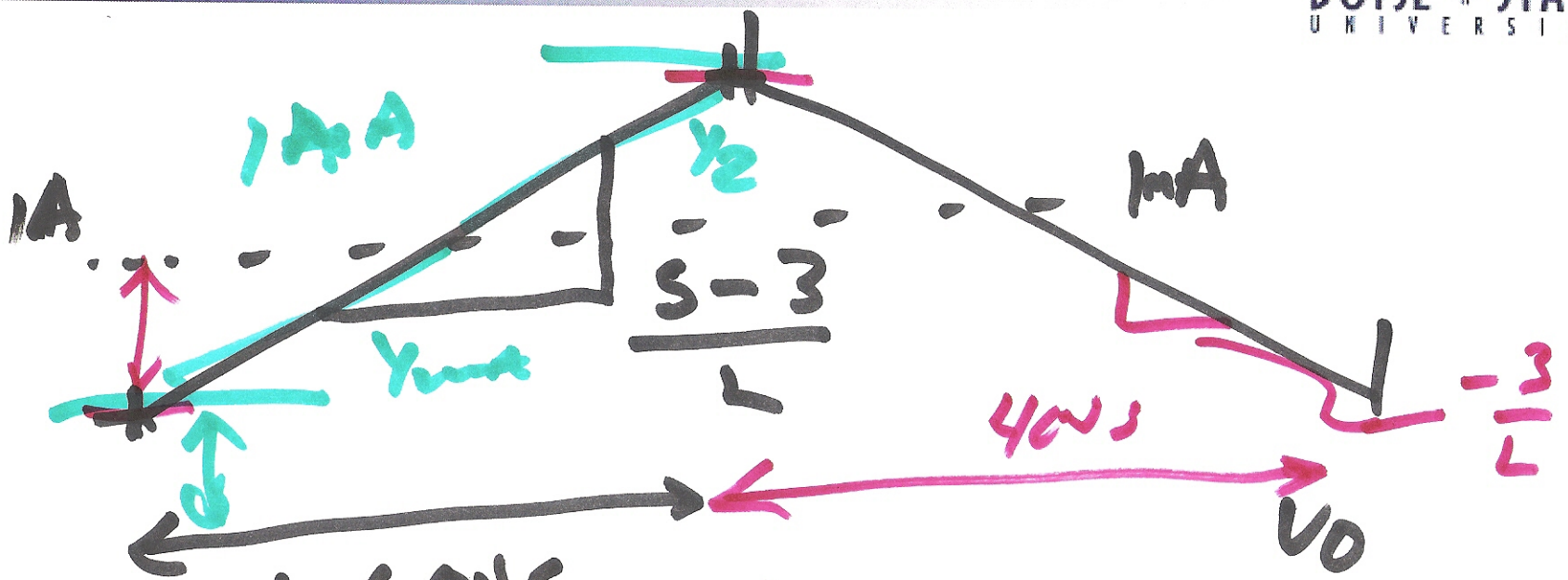
f = 10 MHz


100NS
PMOS ON
40NS
NMOS ON
60NS
M=2

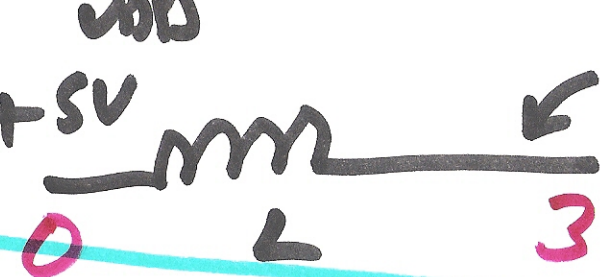

50
NLG.rsh
50
NLS.rsh
M=


10K
M=100
100

2)



$$1mA = \left(\frac{5-3}{L}\right) \cdot 60ns \cdot 60\Omega$$



$$L = \frac{2}{1mA} \cdot 60\Omega$$

$$= 2k \cdot 60\Omega$$

$$= 120\,\mu H$$

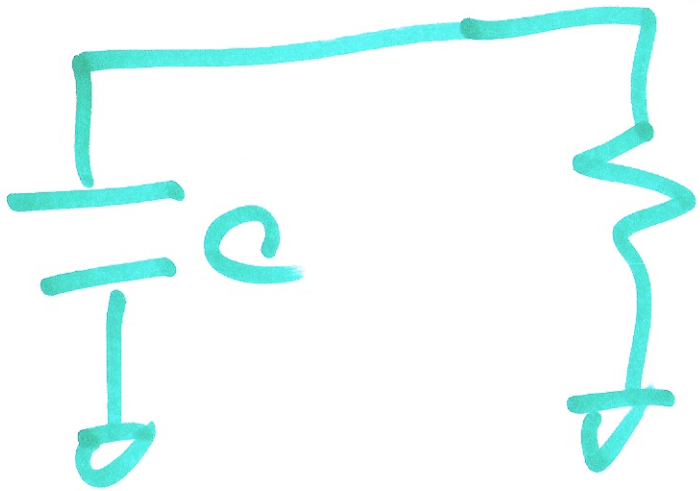
$$\Delta i_L = \left(\frac{5-3}{L}\right) \cdot 60\Omega = \left(\frac{-3}{L}\right) \cdot 40\Omega$$

$$\left(\frac{5-3}{L}\right) 60\Omega + \frac{3}{L} \cdot 40\Omega = 0$$

3)

$CV = Q$

$\Delta V = 10mV$



$\Delta I = \frac{10mV}{R}$

$= \frac{10mV}{3K}$

$= 3.33\mu A$

$\Delta V \cdot C = \Delta Q$

$5mV \cdot C = \Delta Q$

$4ms$

$5mV \cdot C = 3.33\mu A \cdot 4ms$

$\frac{135 \times 10^{-3}C}{5} = 27mF$

$= C = \frac{3.33mA \cdot 40ms}{5mV}$

4)