

HW2:

Due on Oct. 26<sup>th</sup>.

11.41 (3 extra points)

- (1) Turn in your .lis for  $V_{out} \approx 0$  and all  $V_{ov} = 0.15$  volts
- (2) Turn in a WORD file with Waveview plots and explanation for
  - (a) Plot  $[V_{in} \text{ versus } V_{out}]$  for about  $-1.5 \text{ volts} < V_{in} < 1.5 \text{ volts}$ , and find the particular  $V_{in}$  that leads to  $V_{out} = 0$ .
  - (b) Plot  $V_{out}$  versus time with  $V_{in} = A \sin(\omega t)$ ,  $A = 1.5 \text{ volts}$ ,  $\omega = 1 \text{ MHz}$ .

\*\*\*11.41\*\*\*

\*\*\*Model\*\*\*

.protect

.unprotect

\*\*\*Control\*\*\*

.temp=30

.GLOBAL vdd gnd vss

.option nomod post acout=0 \*\*\*

.op

.probe i(\*)

.tran 0.5us 100ms

\*\*\*Power supply\*\*\*

\*name + - value

v1 n3 GND -0.6V

v3 vdd GND 2.5V

v4 vss GND -2.5V

i1 vdd n1 0.1mA

\*\*\*Main\*\*\*

.model nch nmos level=1 vto=0.45 kp=250u lambda=0.1

.model pch pmos level=1 vto=-0.45 kp=100u lambda=0.2

m1 n1 n1 n2 vss nch l=0.18u w=6.4u

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m2 n3 n3 n2 vdd pch l=0.18u w=16u
mn vdd n1 n4 vss nch l=0.18u w=??u m=??
mp vss n3 n4 vdd pch l=0.18u w=??u m=??

.end
```