ECE 320 - Homework #9

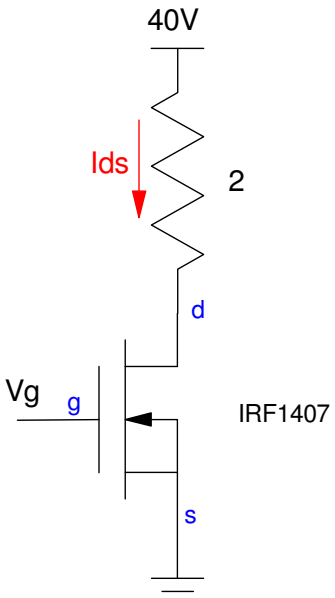
MOSFET switch, CMOS logic. Due Monday, October 25th

MOSFET Switch

One of the MOSFET's that CircuitLab has is an IRF1047. It's specifications are

- max(Ic) = 100A continuous
- Vgs(th) = 4V (max)
- Rds = 7.8mOhm @ Ids = 78A @ Vgs = 10V
- $0.53 each

1) Determine the transconductance gain, kn, for this MOSFET.
   - Assume Vtn = 4.00V



2) Determine the votlages and currents for the following circuit when Vg = 5V
   - Check your result in CircuitLab

3) Determine the votlages and currents for the following circuit when Vg = 10V
   - Check your result in CircuitLab

CMOS Logic

4) Design a CMOS gate to implement the function: f(A, B, C, D)

Y(A,B,C,D)	CD			
	00	01	11	10
00	1	0	1	x
01	1	0	0	1
11	1	1	1	0
10	x	1	x	0

AB