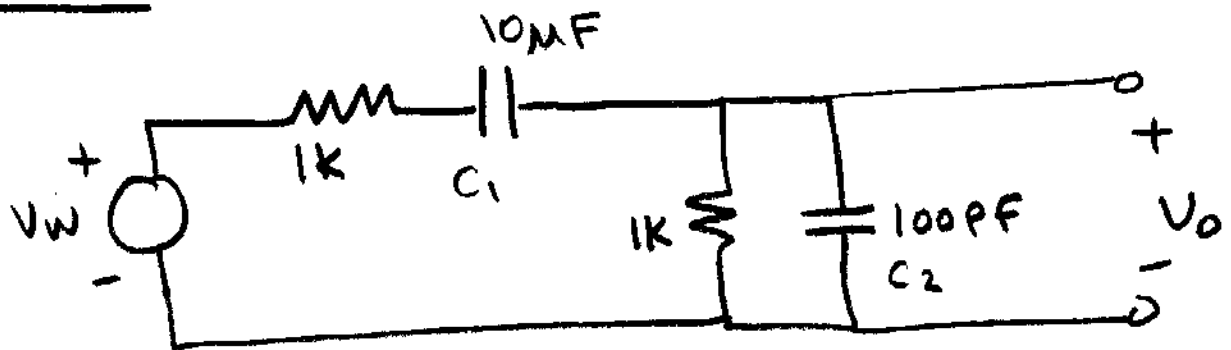
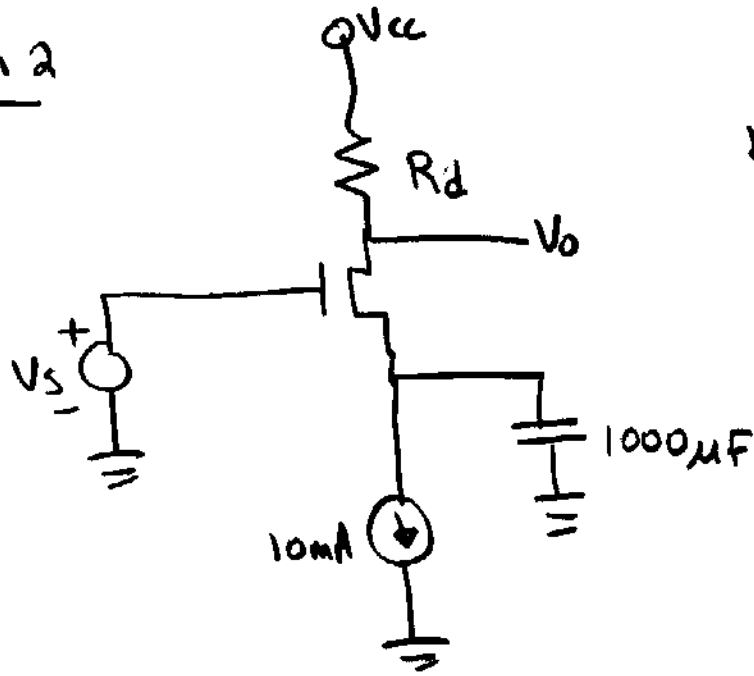


Due 1/28/02

Problem 1

- Find the midband gain  $V_o/V_s$ .
- Find the frequency of the poles due to  $C_1$  and  $C_2$  in Hz.
- Simulate this circuit with a PSpice AC Sweep and verify the poles and midband gain. Use the cursors and marker to label the 3 points.

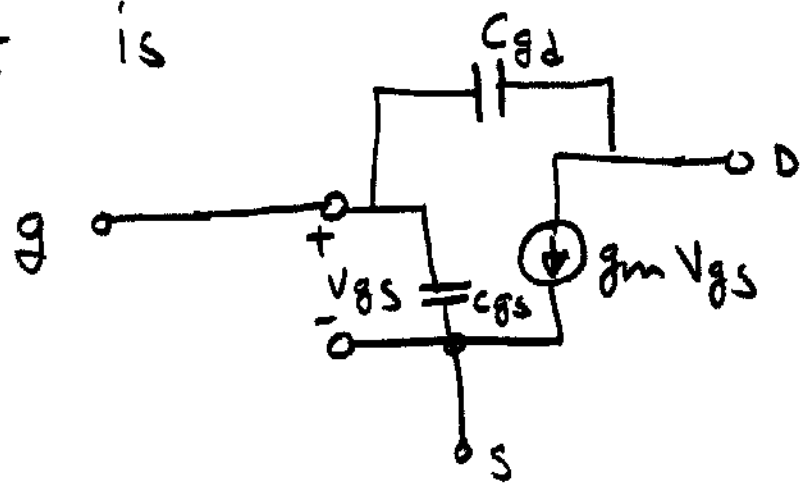
Problem 2



$k = 2.5 \text{ mA/V}^2$   
 $V_T = 2 \text{ V}$

a) Find  $\omega_L$  - The overall lower 3dB frequency for this amplifier.

b) The high frequency model for a MOSFET is



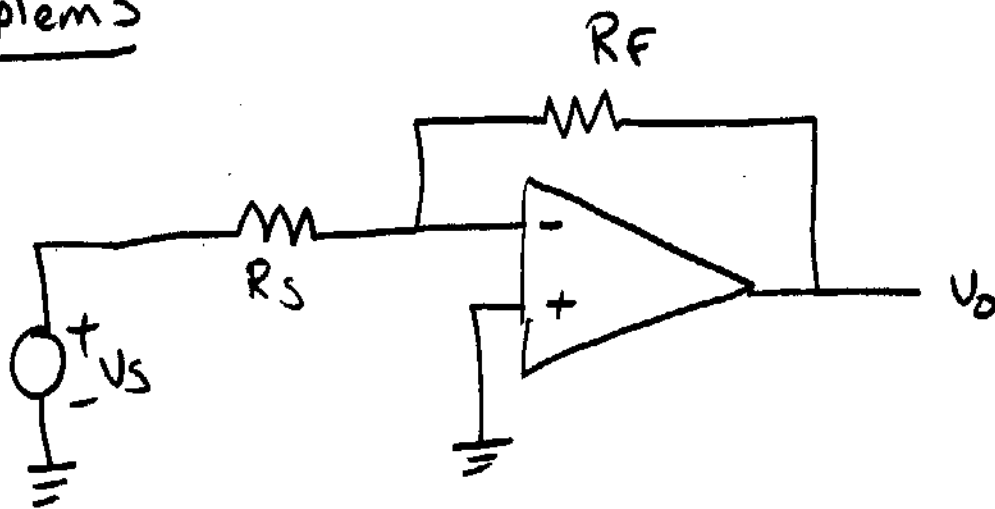
-  $C_{gd}$  is analogous to  $C_u$  and  $C_{gs}$  is analogous to  $C_{\pi}$ .

3

- If  $C_{gs} = 200\text{pF}$  and  $C_{gd} = 20\text{pF}$ , Find

The overall high Frequency 3dB point, wh.

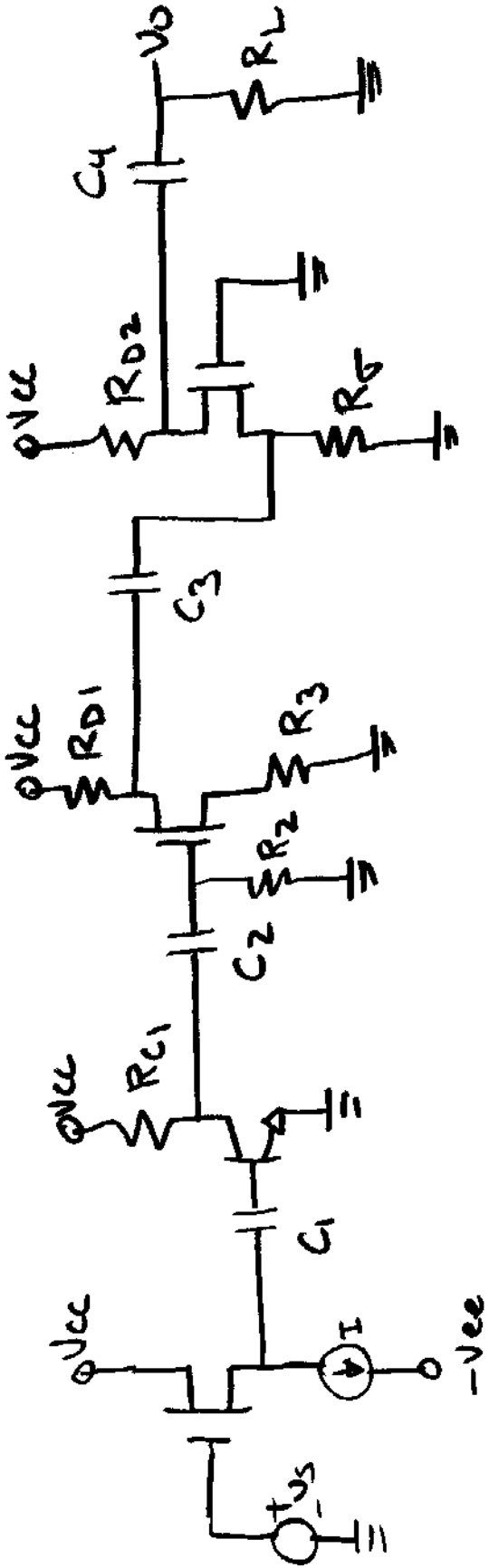
### Problem 3



- For an opamp,  $V_o = G(V_p - V_m)$

- Use millers theorem to Find a value for the input impedance of this amplifier.
- This is the resistance seen by  $V_s$ .

# Problem 4



- Find the frequency of each pole.

- Find the overall lower 3dB frequency for this amplifier.

Problem 5: Find an equation for the midband gain  $v_o/v_s$ .

