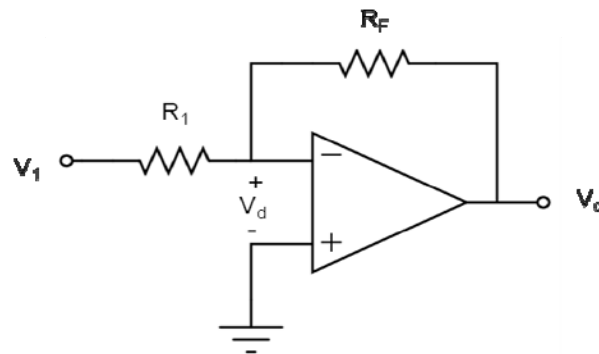


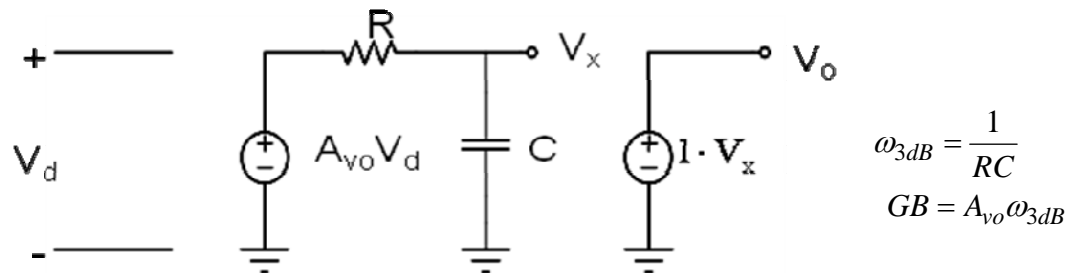
HOMEWORK ASSIGNMENT #1

Prob. 1. a) Design an inverting amplifier with a closed loop DC gain of -6 and a bandwidth of 6 MHz. Determine the value of the resistors and required GB of the Op Amp.



b) What will be the bandwidth for the inverter designed in a) if you simply substitute the op amp by a 741 type?

Prob. 2. Simulate in PSPICE or CADENCE your design circuit of Prob. 1. Use an Op Amp macromodel as shown below:



Do AC analysis and also step response and then obtain ω_{3dB} in both domains: time and frequency. Discuss your results. Find a commercial Op Amp capable to satisfy the design specs for prob. 1. Simulate again your circuit with the macromodel of the commercial Op Amp. Indicate the differences between both results from simulations.

Prob. 3. (Only for 622) Propose a macromodel capable to simulate the following transfer function:

$$H(s) = \frac{A_o(1 + s/\omega_z)}{(1 + s/\omega_{p1})(1 + s/\omega_{p2})}$$

Reading Assignment:

Read Chapter 2 of “ Design of Analog Filters” by R. Schaumann and M.E. Van Valkenburg