

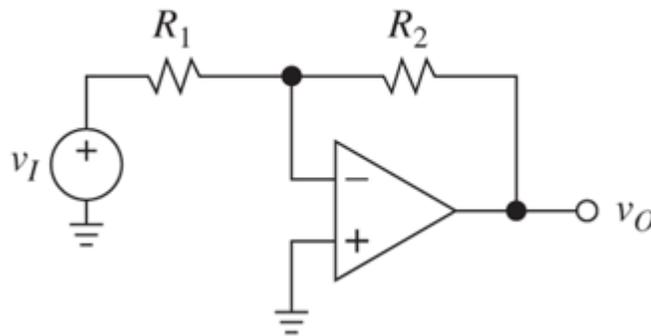
HOMEWORK ASSIGNMENT #1

Prob. 1 a) Obtain the transfer function $A_{CL}(s) = \frac{V_o(s)}{V_{in}(s)}$ for $A = A(s)$.

b) for $A(s) = A_{o,DC}$ obtain the expressions for

$$S_p^{A_{cl}} = \frac{\partial A_{CL}}{\partial p} \frac{p}{A_{CL}}$$

when $p = A_{o,DC}, R_1, R_2$

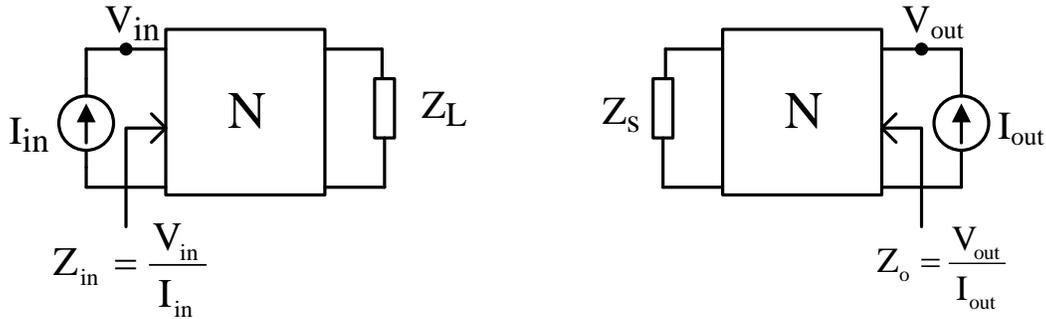


c) Determine the require $\frac{\Delta A_{o,DC}}{A_{o,DC}}$ given

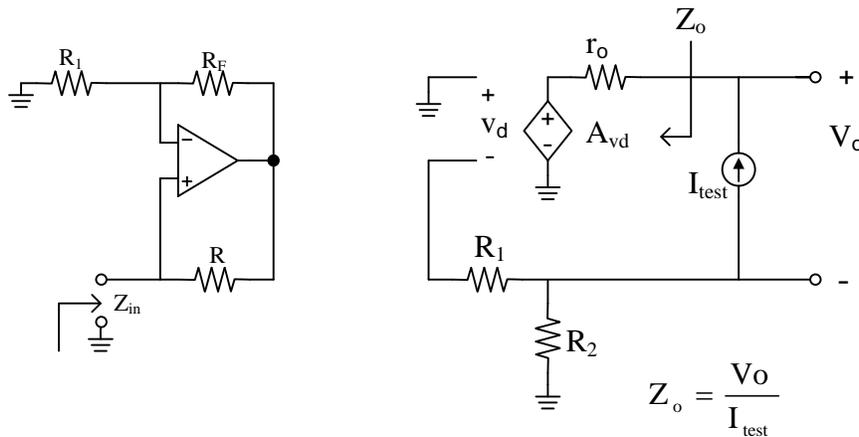
$$\frac{\Delta A_{CL}}{A_{CL}} = \pm 5\%$$

and $A_{o,DC} = 10^3$, $\beta = \{0.25, 0.5, 0.9\}$

Prob. 2. The input (output) impedance of a two port network can be obtained by applying a test current and evaluating the voltage across the current source.



Using node analysis for the circuits shown below, determine Z_{in} and Z_{out} for three cases: $A(s) = A_o$, $A(s) = GB/s$ and for an ideal $A(s)$ becoming infinite.



Prob. 3 (for graduate students) problems 1.21 and 1.60 from textbook.

Reading assignment. Read Chapter 1 and Sections 2.1 - 2.4, and 3.8 of textbook