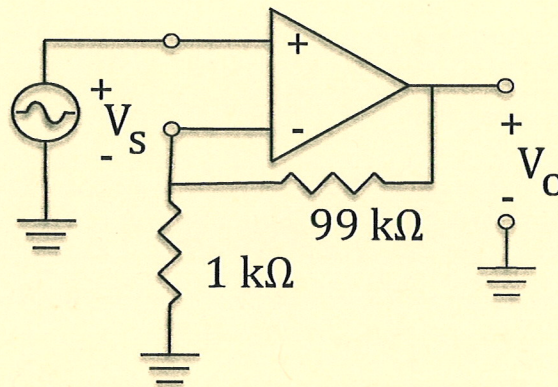


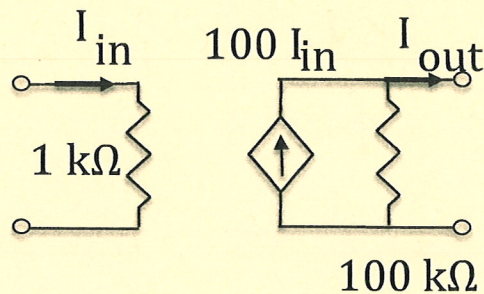
Fall 2012 ECE Dept. WPE

A negative feedback amplifier is shown below whose characteristics are to be determined. The open loop amplifier equivalent circuit is also shown.

Negative Feedback Amplifier



Open Loop Amplifier Equivalent Circuit



1. (1 point)
Approximately determine the closed loop gain V_O/V_S . Justify any approximations.
2. (1.5 points)
Suppose that the source V_S has a source resistance R_S . What range of values can R_S have before the closed loop gain has changed by 10% from the value found in part #1? Assume there is no load resistance connected to the output V_O .
3. (1.5 points)
Suppose there is a finite load resistance R_L connected to the output V_O . What range of values can R_L have before the closed loop gain has changed by 10% from the value found in part #1. Assume the source has zero source resistance R_S .