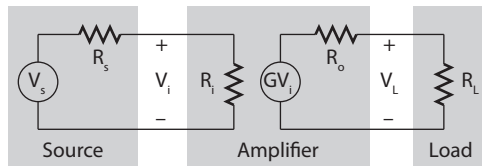


Homework 2

ME 240: Fundamentals of Instrumentation & Measurement

D. H. Kelley and I. Mohammad • 19 points

- (2 points) An amplifier has a gain of 60 dB. If the input voltage is 3 mV, what is the output voltage?
- (3 points) An amplifier has a user-selectable gain ($V_{\text{out}}/V_{\text{in}}$) of 10, 100, or 500. What is the gain in dB for each value?
- A source, an amplifier, and a load are modeled as shown.
 - (4 points) Use Kirchoff's voltage law and the definition of resistance to express V_i in terms of V_s and resistances.
 - (4 points) Use Kirchoff's voltage law and the definition of resistance to express V_L in terms of G , V_i and resistances.



- The noninverting amplifier shown below is to be constructed with a $\mu\text{A}741\text{C}$ op-amp. It is to have a gain of 100.
 - (3 points) Specify the values for the two resistors.
 - (3 points) By hand or using software, sketch plots of the frequency variation of this amplifier's gain and phase (called Bode plots), using the resistances you specified.

