

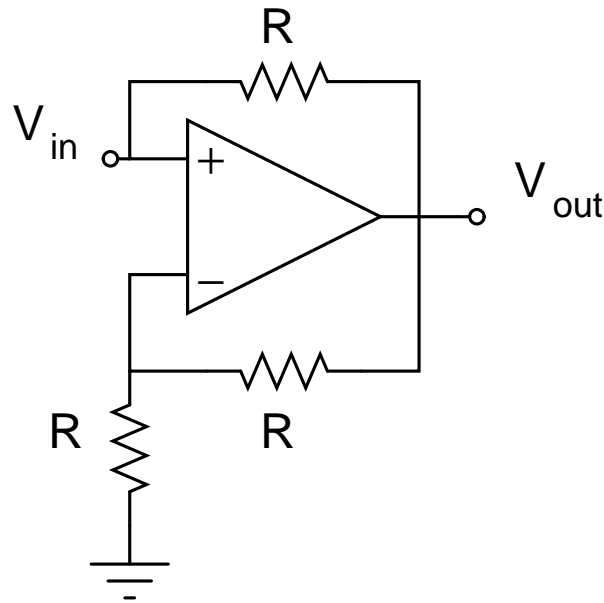
PHYSICS 3150

Total: 20 marks

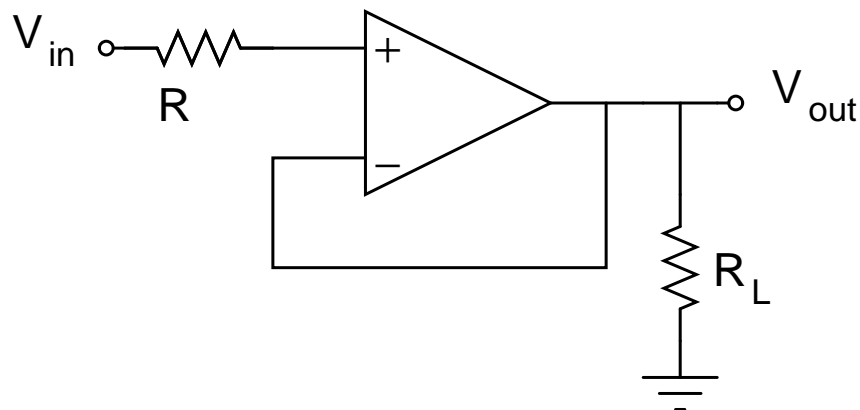
Problem Set 1

due February 1, 2005

1. (5 marks) What is the closed-loop gain, A_V , and the input impedance, R_{in} , of the following circuit?



2. (5 marks) Design a current-to-voltage converter for a transducer which can produce a current as large as 5 mA.
3. (5 marks) In the following circuit $R=50\text{ k}\Omega$, $R_L=200\text{ }\Omega$ and $V_{in}=5+3\cos\omega t$ V. Assuming that the maximum current the op-amp can supply is 25 mA, sketch V_{out} .



4. (5 marks) What is the closed-loop gain of the following circuit? Is it a filter and, if so, what kind?

