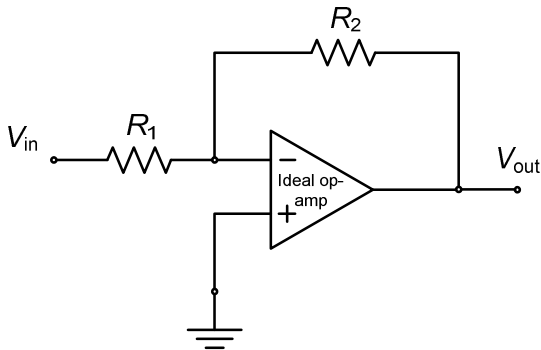
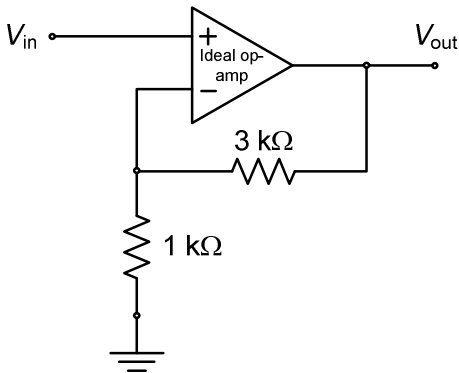


You are allowed to use your lab manual and lab notebook during the quiz.

- (1) (30 points) If you have only one op amp and four  $1\text{ k}\Omega$  resistors available, how would you construct an inverting amplifier circuit (as shown) such that  $V_{\text{out}} = -4V_{\text{in}}$ ? Draw the circuit and provide your justification.



- (2) (30 points) For the op amp circuit shown, write  $V_{\text{out}}$  in terms of  $V_{\text{in}}$ .



- (3) (40 points) In the op amp circuit shown, find  $V_{\text{out1}}$  and  $V_{\text{out2}}$  in terms of  $V_{\text{in}}$ .

