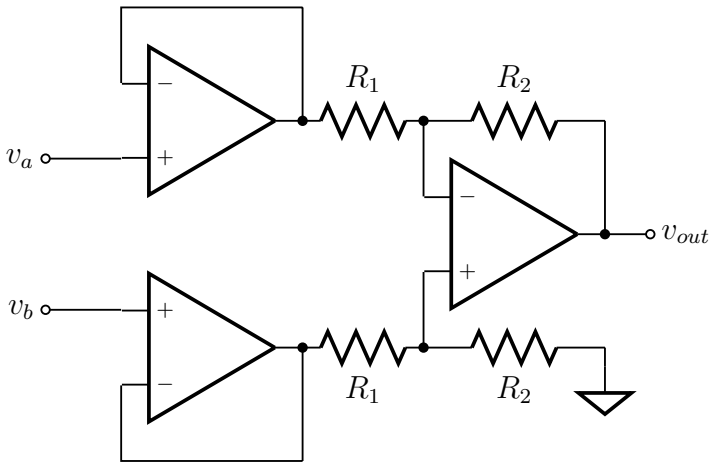
- Homework is due at the beginning of class
- Start early and get help if you need it
- Show all work neatly and clearly; redraw and/or rewrite problem if needed as work turned in should stand alone
- Identify your answers (with units) using a box or circle
- Staple multiple pages together

1. Using ideal assumptions for the op-amp, solve for the output voltage V_{out} in the two-input summing amplifier circuit shown at the top of page 642 of the book.

2. Using ideal assumptions for the op-amps, solve for the output voltage V_{out} in the three-input summing amplifier circuit shown in Figure 8.13 on page 642 of the book.

3. Consider the circuit shown below which is a basic instrumentation amplifier. Make ideal assumptions about the op-amps' behaviors and solve for the output voltage v_{out}.



4. Convert the following binary numbers to their decimal equivalent.
   (a) $(110011)_2$
   (b) $(10010100)_2$

5. Add $(101101)_2$ to $(101110)_2$ and give the answer in binary.