Design the circuit shown in Fig. P2.35 to have an input resistance of 100 k\( \Omega \) and a gain that can be varied from \(-1\) V/V to \(-100\) V/V using the 100-k\( \Omega \) potentiometer \( R_4 \). What voltage gain results when the potentiometer is set exactly at its middle value?
**D 2.48** Design a circuit, using one ideal op amp, whose output is \( v_o = v_{i1} + 2v_{i2} - 9v_{i3} + 4v_{i4} \). *(Hint: Use a structure similar to that shown in general form in Fig. P2.47.)*
2.62 For the circuit shown in Fig. P2.62, express $v_o$ as a function of $v_1$ and $v_2$. What is the input resistance seen by $v_1$ alone? By $v_2$ alone? By a source connected between the two input terminals? By a source connected to both input terminals simultaneously?

![Figure P2.62](image)