Chapter 5, Solution 72.

Find the load voltage v_L in the circuit of Fig. 5.98.

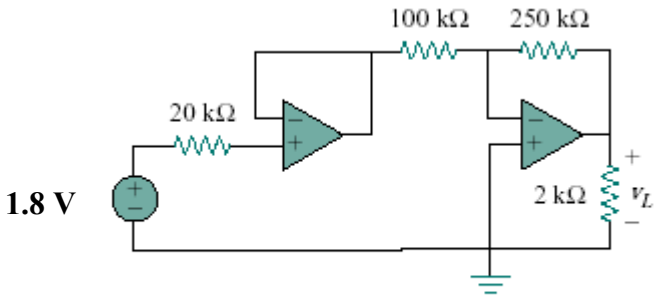

Figure 5.98
For Prob. 5.72.

Solution

Since no current flows into the input terminals of ideal op amp, there is no voltage drop across the 20 kΩ resistor. As a voltage summer, the output of the first op amp is

$$v_{01} = 1.8 \text{ V}$$

The second stage is an inverter

$$v_2 = -\frac{250}{100} v_{01}$$

$$= -2.5(1.8) = \mathbf{-4.5\ V}.$$