Problem 2.2

The input signals to a differential amplifier are:
\[ v_1(t) = 0.1 \cos(20 \pi t) + 20 \sin(120 \pi t) \]

and
\[ v_2(t) = -0.1 \cos(20 \pi t) + 20 \sin(120 \pi t) \]

Find expressions for the common-mode signal and the differential signal.

Problem 2.10

Each of the circuits shown below (see text for diagrams) employs negative feedback. Assume that op amps are ideal, and use the summing-point constraint. Analyze the circuits to find the value of \( v_o \) for each circuit.

Problem 2.18

The circuit below employs negative feedback. Use the summing-point constraint for both op-amps) to derive expressions for the voltage gains \( A_1 = \frac{v_{o1}}{v_{in}} \) and \( A_2 = \frac{v_{o2}}{v_{in}} \).