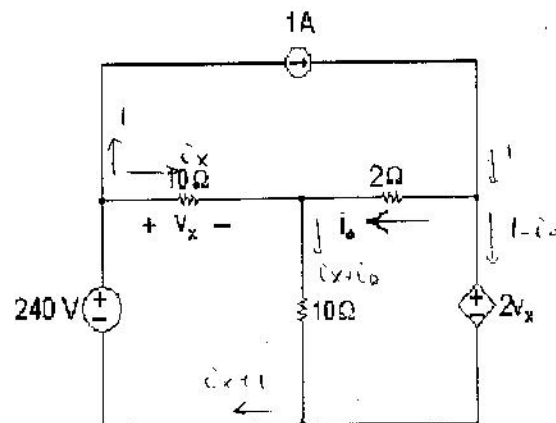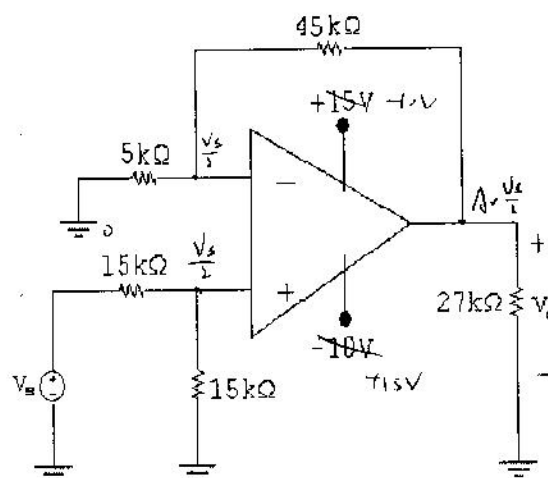1. Find v_{oc} and i_{sc} with respect to the terminals ab using superposition. (30%)
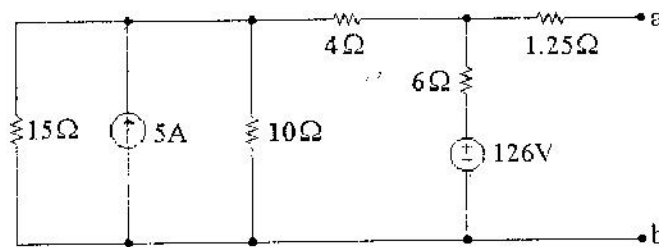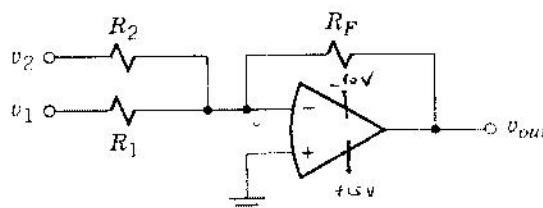

2. Find i_o in the circuit below. (20%)

3. The op amp circuit shown below is a non-inverting amplifier. Find v_o. Calculate the range of values of v_s for which the expression for v_o is valid. (30%)

4. If $R_F = 50\ \Omega$, find R_1 and R_2 for the circuit below so that $v_{out} = -5v_1 - 20v_2$

If the op amp has the same power supply as in Problem 3, find the range of values for v_L (given $v_2 = 0.2$ V) such that the op amp continues to operate in its linear region. (20%)