CASE WESTERN RESERVE UNIVERSITY
Case School of Engineering
Department of Electrical Engineering and Computer Science

ENGR 210. Introduction to Circuits and Instruments (4)

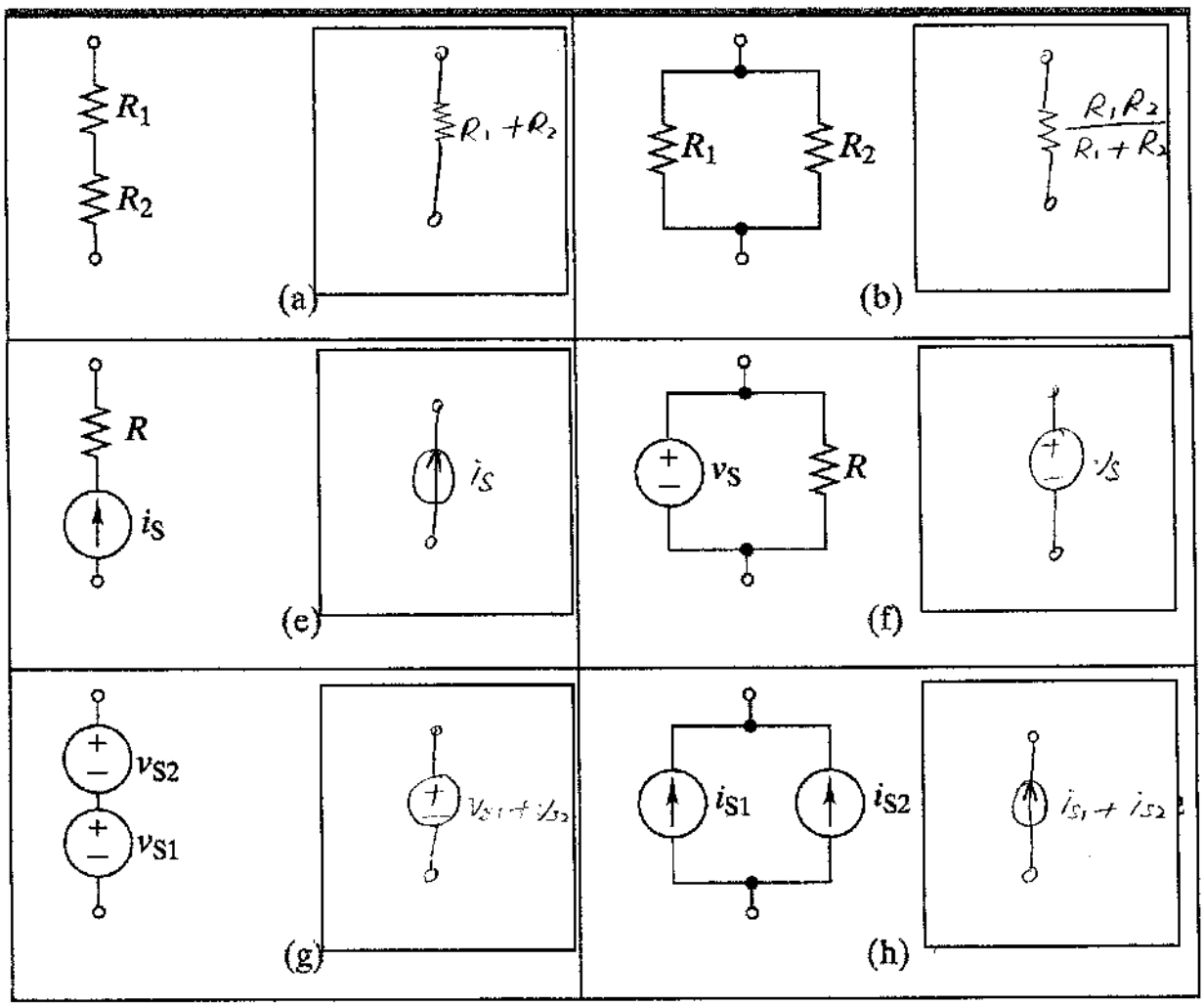
Quiz No. 3 9/19/03

Name (*Section*): Solution

PUT ANSWERS IN THE SPACE PROVIDED AND SHOW YOUR WORK

Problem 1 (10 points)

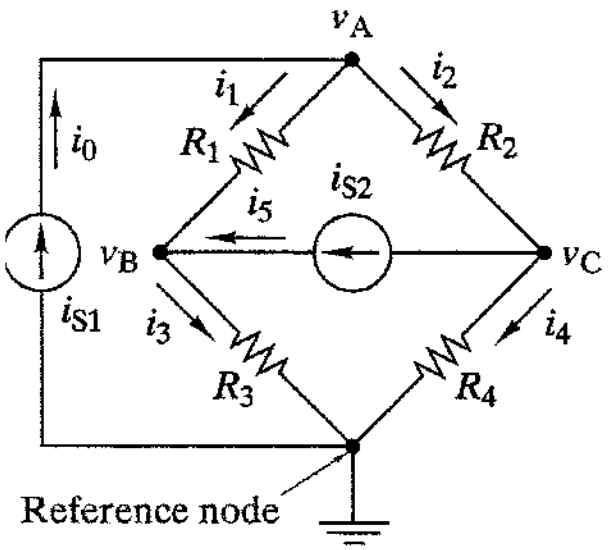
Each of the following two-element circuits can be replaced by an equivalent circuit using just one element. Complete the table, being sure to indicate the value of the element in the equivalent circuit.



(over)

Problem 2 (10 points)

Find the node-voltage equations for this circuit. Complete the table.



KCL NODE	NODE-VOLTAGE EQUATION
A	$\frac{1}{R_1}+\frac{1}{R_2}$ v_A + $(-\frac{1}{R_1})$ v_B + $(-\frac{1}{R_2})$ v_C + = i_{S1}
B	$-\frac{1}{R_1}$ v_A + $(\frac{1}{R_1}+\frac{1}{R_3})$ v_B + 0 v_C + = i_{S2}
C	$-\frac{1}{R_2}$ v_A + 0 v_B + $(\frac{1}{R_2}+\frac{1}{R_4})$ v_C + = $-i_{S2}$

(over)