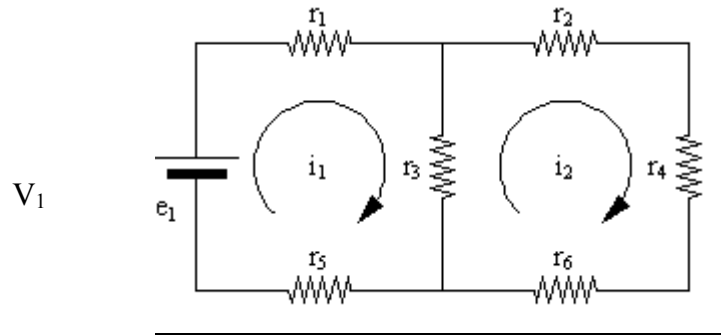1. The current in a circuit made up of a network of resistors is governed by Kirchoff's Law. Kirchoff's voltage law states that the sum of the voltage drops around any closed loop in the network must equal zero.

In the example above Kirchoff's Law can be applied and following set of equations are obtained for the first and second loop, respectively.

$$I_1 R_1 + (I_1 - I_2)R_3 + I_1 R_5 = V_1$$
$$I_2 R_2 + I_2 R_4 + I_2 R_6 + (I_2 - I_1)R_3 = 0$$

Solve the above equations for the two unknown currents I_1 and I_2 with R_1= 10, R_2 = 5, R_3 = 20, R_4 = 15, R_5 = 25, R_6 = 10 ohms and V_1 = 9 volts.

2. The resistance of a metal follows the following relationship:

$$R = a + bT + cT^2$$

Determine parameter values, a, b, and c, using the following the two data sets.

T (K)	300	400	600
R (Ohms)	15.0	21.1	36.0

3. It was observed that the curve passing through the points of (100, 0.2), (400, 0.45) and (600, 0.57) can be expressed with the quadratic equation,

$$f(x) = a + bx + cx^2$$

i)   Determine the coefficients of the quadratic equation.
ii)   Plot y vs. x graph along the quadratic curve. Do not forget to label the graph properly