Resistors in Series and Parallel – Advanced
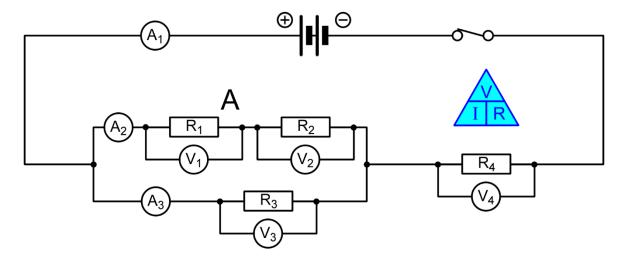
Question One:

Battery = 15 V $R_1 = 20\ \Omega$ $R_2 = 50\ \Omega$ $R_3 = 40\ \Omega$ $R_4 = 80\ \Omega$

(a) Calculate the resistance through part **A** and part **B** of the circuit, and hence calculate the total resistance through the circuit, *i.e.* the value for R_e.

(b) Calculate the current through the main circuit, *i.e.* the value on A_1.

(c) Calculate the potential difference across part **A** and across part **B** of the circuit.

(d) Calculate the current across R_1, R_2, R_3 and R_4, *i.e.* the readings on A_2, A_3, A_4 and A_5.

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Question Two:

Battery = 18 V $R_1 = 20\ \Omega$ $R_2 = 30\ \Omega$ $R_3 = 100\ \Omega$ $R_4 = 40\ \Omega$

(a) Calculate the resistance through part **A** of the circuit, and hence calculate the total resistance through the circuit, *i.e.* the value for R_e.

(b) Calculate the current through the main circuit, *i.e.* the value on A_1.

(c) Calculate the potential difference across part **A** of the circuit and across R_4, *i.e.* the value on V_4

(d) Calculate the current across R_1, R_2, and R_3 *i.e.* the readings on A_2 and A_3.

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• Scan the QR code below for the answers to this assignment.

http://www.nygh.sg/lower_secondary_science/sec_two_science/sec_two_physics/resistors_advanced_answers.pdf