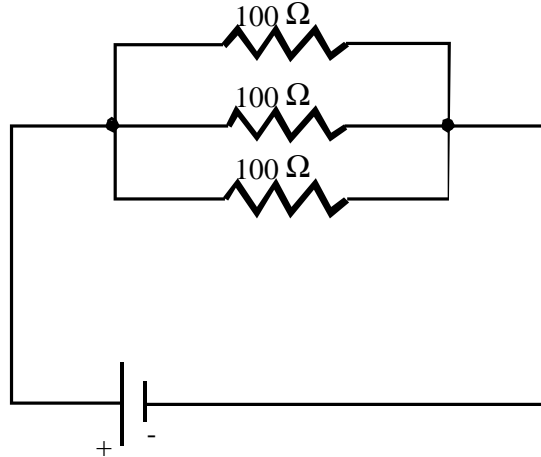
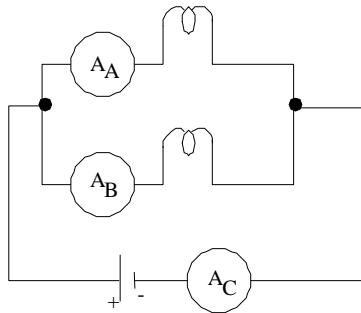


**Phys Sc 416**  
**Circuits: Extra Practice from Government Exams**

1 Determine the equivalent (total) resistance of the following circuit:

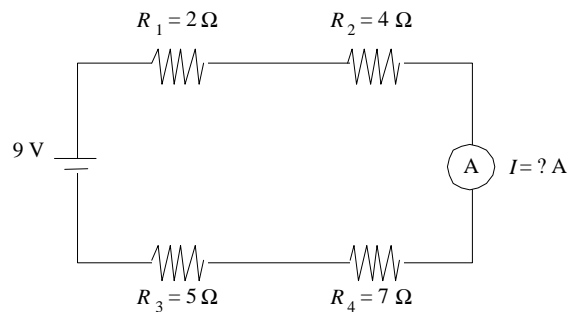


2 A student connects a circuit in which two electric bulbs are in parallel and three ammeters  $A_A$ ,  $A_B$  and  $A_C$  are placed as shown in the diagram below:



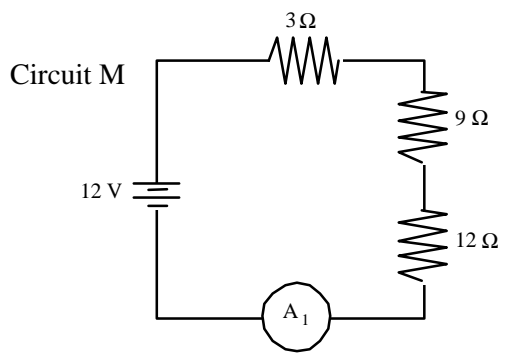
The student reads the three ammeters. Which will indicate the highest current?  
 Explain your answer.

3 The circuit in the diagram at the right consists of 4 resistors whose values are  $2\ \Omega$ ,  $4\ \Omega$ ,  $5\ \Omega$  and  $7\ \Omega$  respectively.  
 What is the reading of the ammeter?



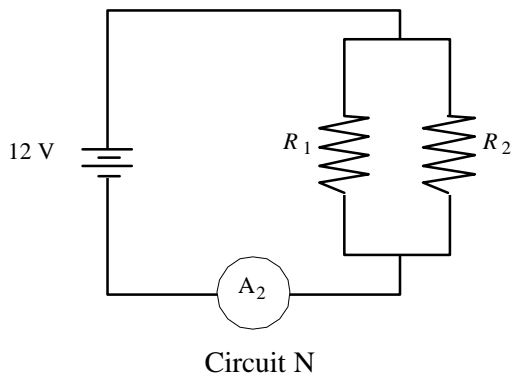
4

A student has access to circuit M shown at the right.



He wants to assemble circuit N, shown at the right, by using the components in circuit M.

The current intensity ( $I_2$ ) in circuit N is to be 10 times greater than that in circuit M.

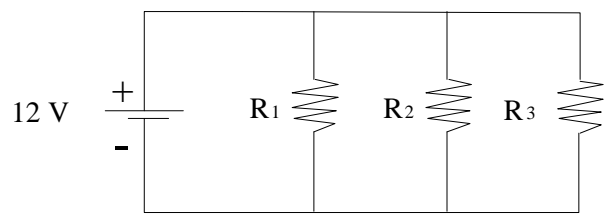


Which resistors should he use?

Show all your work.

5

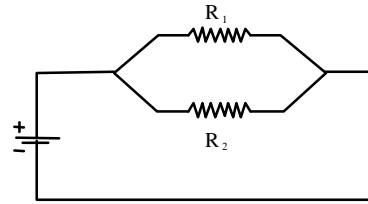
The circuit illustrated below consists of three resistors ( $R_1$ ,  $R_2$  and  $R_3$ ) and a power supply. The potential difference, or voltage, (V) at the terminals of the power supply is 12 V.



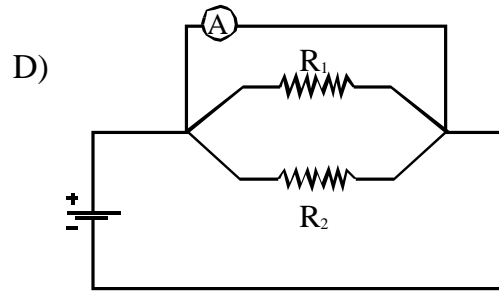
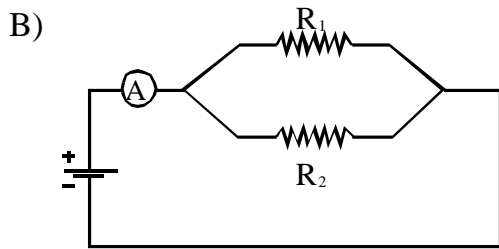
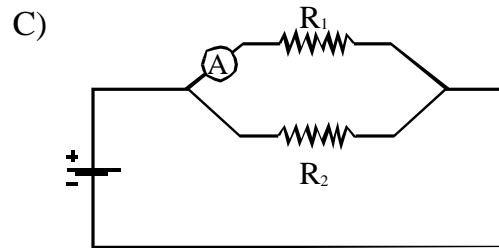
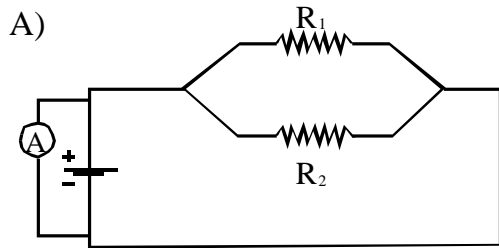
What is the potential difference (voltage) at the terminals of each resistor?

6 The electric circuit shown at the right is available to you.

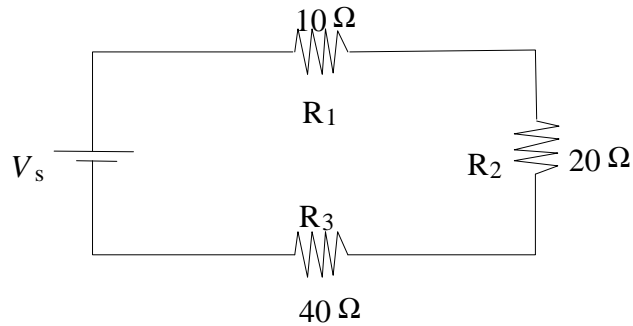
You are to connect ammeter A so that you can measure the current intensity,  $I$ , flowing through resistor  $R_1$ .



Which diagram shows where the ammeter should be placed?



7 In the electric circuit illustrated below, the current intensity ( $I$ ) is 0.25 A.

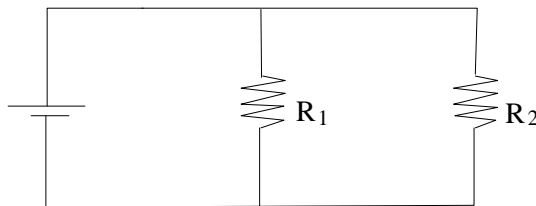


What is the potential difference across the terminals of the power source,  $V_s$ ?

Show all your work.

8

The following electric circuit consists of two resistors  $R_1$  and  $R_2$  and a power source.



Using an ammeter, you measured the current intensity ( $I$ ) through each resistor. Here are the results :

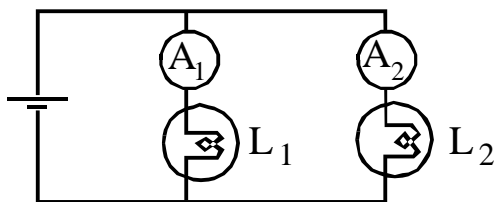
Resistor	Intensity (A)
$R_1$	0.75
$R_2$	0.75

Given this information, what is the current intensity provided by the power source  $I_s$ ? (Find the total current)

Show all your work.

9

In the laboratory, you built an electric circuit consisting of a power source, two different light bulbs,  $L_1$  and  $L_2$ , and two ammeters,  $A_1$  and  $A_2$ . The resistance of light bulb  $L_2$  is twice the resistance of light bulb  $L_1$  ( $R_2 = 2R_1$ ).



If ammeter  $A_1$  reads 0.6 A, what is the reading given by ammeter  $A_2$ ?

Explain the procedure you used to determine this reading.

