Simple Circuits

Name & Set

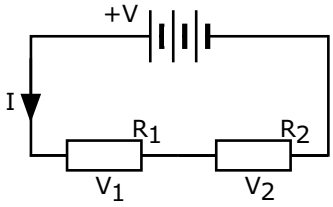
For each of the circuits shown in the diagrams for questions 1, 2, 3 & 4 below carry out the calculations necessary to complete the table that accompanies it.

In each case the column headings refer to the labels on the diagram directly above the table. 'Eqv R' stands for the *equivalent resistance* of the whole circuit.

The data on each row represents a *different* circuit.

You should show *all* working on A4. Do not simply fill in the blank spaces.

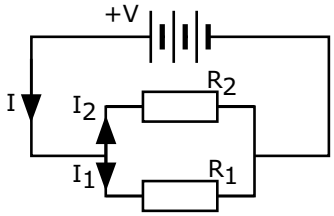
Circuit 1



Simple series circuit

	V	***I***	***R_1***	***R_2***	***Eqv R***	***V_1***	***V_2***
A			3 Ω	2 Ω			
B		2 A	5 Ω		6 Ω		
C		0.4 A				1 V	0.6 V
D	11 V		900 Ω	200 Ω			2 V
E		0.05 A			13 kΩ	150 V	500 V

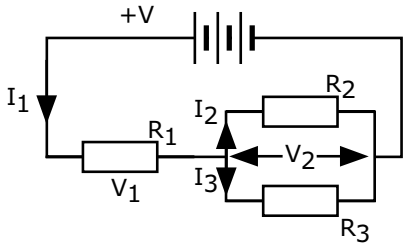
Circuit 2



Simple parallel circuit

Circuit 2	***V***	***I***	***R_1***	***R_2***	***Eqv R***	***I_1***	***I_2***
A	15 V		5 Ω	3 Ω			
B		10 mA		4 kΩ	0.8 kΩ		2 mA
C			2.4 Ω		2 Ω	625 mA	125 mA
D	4 V	0.3125A		64 Ω		0.25 A	
E			100 Ω	2 Ω		0.09 A	4.5 A
F					2.1 Ω	1 A	2.3 A

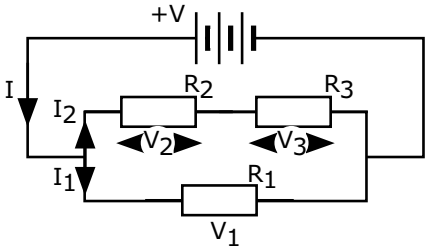
Circuit 3



Mixed circuit

	V	I_1	R_1	R_2	R_3	Eqv R	I_2	I_3	V_1	V_2
A	11 V		2 Ω	4 Ω	6 Ω					
B	1.5 V	50 mA		60 Ω	20 Ω	30 Ω				
C				100 Ω	300 Ω	275 Ω	0.06A	0.02A		
D	20 V		6 kΩ		5 kΩ	10 kΩ				
E			1 Ω	5 Ω		3 Ω			3 V	6 V

Circuit 4



Mixed circuit

Circuit 4	V	I	R_1	R_2	R_3	Eqv R	I_1	I_2	V_2	V_3
A	1.5 V		3 Ω	2 Ω	1 Ω					
B		2 A	5 Ω		30 Ω	4.5 Ω				
C		0.2 A	100 Ω			87.5Ω			5 V	12.5V
D							10 mA	2 mA	2.4 V	0.6 V
E			2 Ω	1 Ω		1.8 Ω	13.5A			
F						0.99Ω		0.02A	0.02V	1.98V