Circuit Problems

Combining Resistors

1.   What is the total resistance of these two resistors?
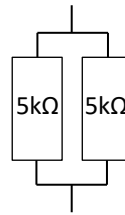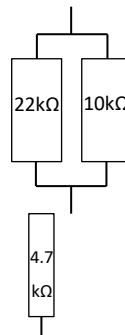
5kΩ   5kΩ

……………………………………….kΩ

2.   What is the total resistance of these two resistors?

27kΩ   43kΩ

……………………………….kΩ

3.   What is the total resistance of these three resistors?

22kΩ   10kΩ

4.7 kΩ

……………………………….kΩ
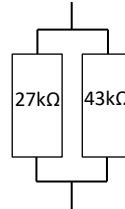
4.   What is the total resistance of these three resistors?

22kΩ

10kΩ

4.7kΩ

……………………………….kΩ
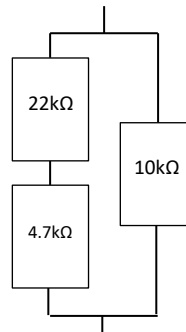
5.   What is the total resistance of these four resistors?

22kΩ   10kΩ

4.7kΩ   10kΩ

……………………………….kΩ

6.   What is the total resistance of these three resistors?

20Ω   20Ω   20Ω

……………………………….Ω
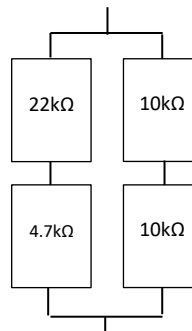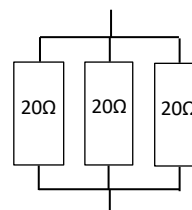
7.   What is the total resistance of these three resistors?

| 27Ω | 2.2MΩ | 4.7MΩ |

....Ω
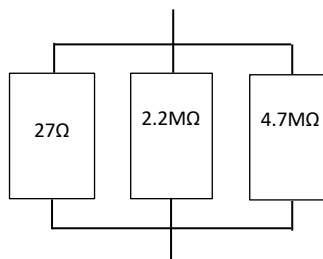
8.   What is the total resistance of these six resistors?
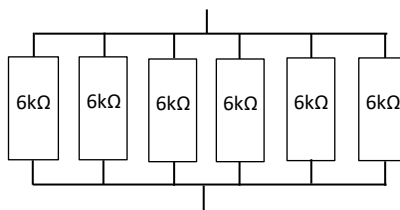
| 6kΩ | 6kΩ | 6kΩ | 6kΩ | 6kΩ | 6kΩ |

......................................kΩ

9.   What is the total resistance of these five resistors?

| 10kΩ |
| 10kΩ | 10kΩ | 10kΩ |
| | | 10kΩ |

......................................kΩ

10.   What is the total resistance of these five resistors?

| 22kΩ | 10kΩ |

| 27kΩ | 2.2MΩ | 4.7MΩ |

......................................kΩ
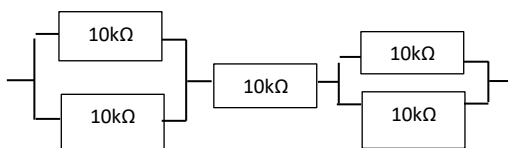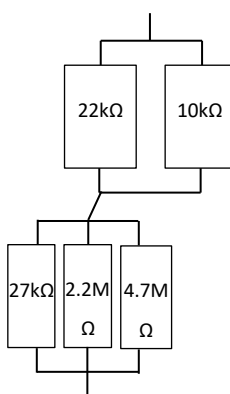
11. The diagram below shows a circuit connected by a student.
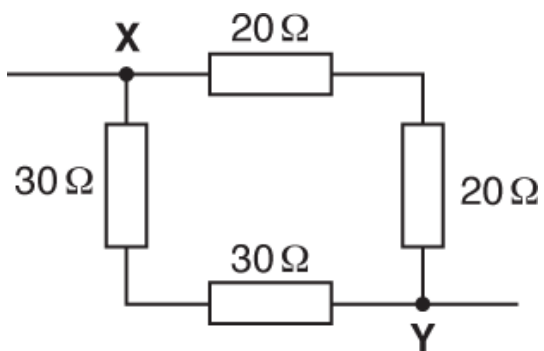
What is the total resistance of the circuit between points **X** and **Y**?

A   24 Ω

B   29 Ω

C   38 Ω

D   100 Ω

Calculate the missing currents, voltages and resistances.

1.

3V
A₂
0.2A
V₁
A₁
V₂   V₃

A1 = _____
A2 = _____
V1 = _____
V2 = _____
V3 = _____

2.

9V
A2   3A
R1   A1   2Ω
3V   V1

A1 = _____
A2 = _____
V1 = _____
R1 = _____

3.

V1
A1
3Ω   2Ω   2A   5Ω
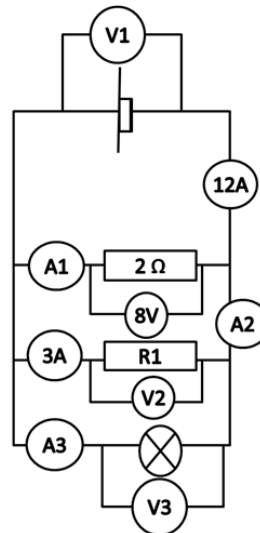V4   V3   V2

A1 = _____
V1 = _____
V2 = _____
V3 = _____
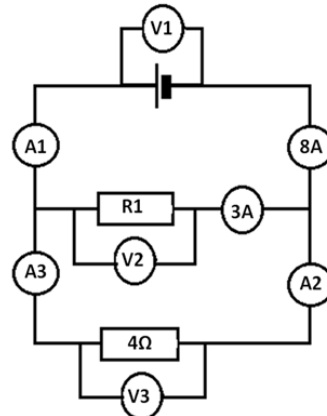V4 = _____

4.

9V
A1
3Ω
2A
V1
4V   V2
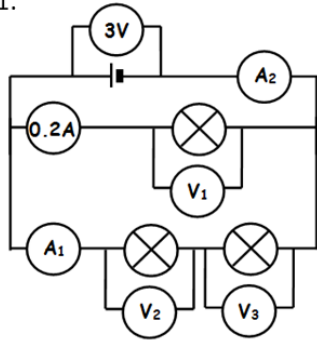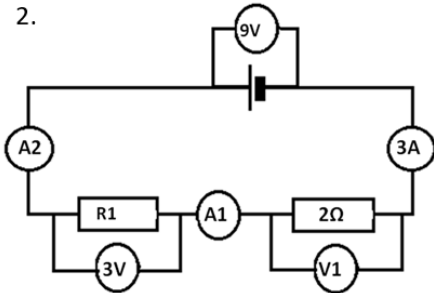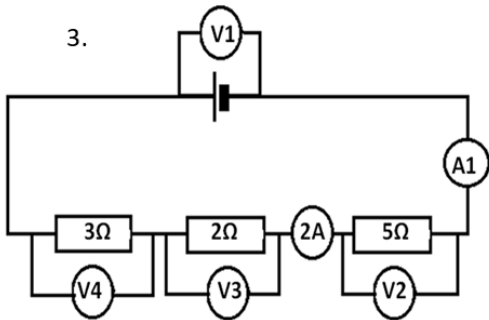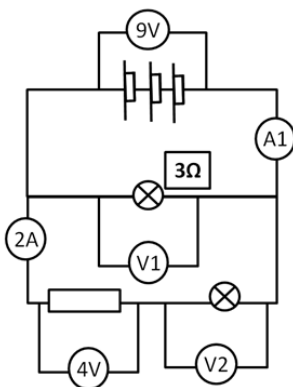
A1 = _____
V1 = _____
V2 = _____

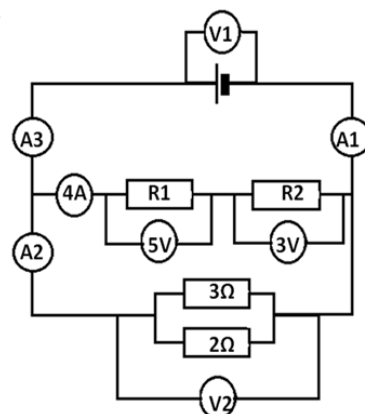Calculate the resistance of:

The bulb = _____
The resistor = _____

5.

V1
12A
A1   2Ω
8V   A2
3A   R1
V2
A3
V3

A1 = _____
A2 = _____
A3 = _____
V1 = _____
V2 = _____
V3 = _____
R1 = _____

6.

V1
A1   8A
R1   3A
V2
A3   A2
4Ω
V3

A1 = _____
A2 = _____
A3 = _____
V1 = _____
V2 = _____
R1 = _____
R2 = _____

7.

V1
A3   A1
4A   R1   R2
5V   3V
A2
3Ω
2Ω
V2

A1 = _____
A2 = _____
A3 = _____
V1 = _____
V2 = _____
V3 = _____
R1 = _____