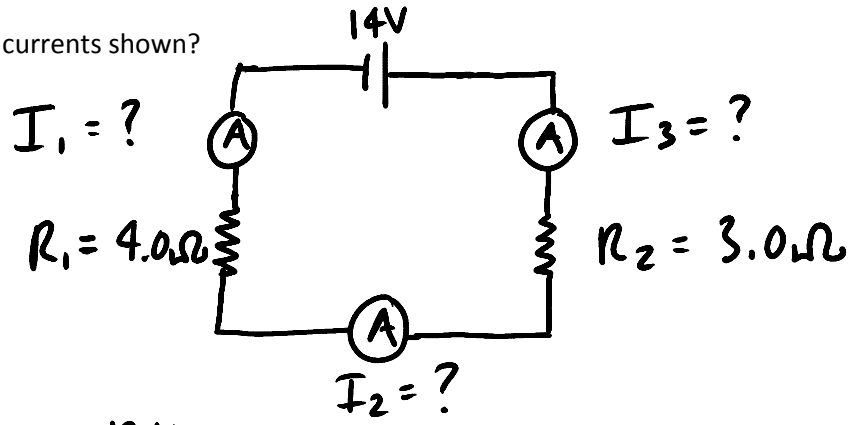
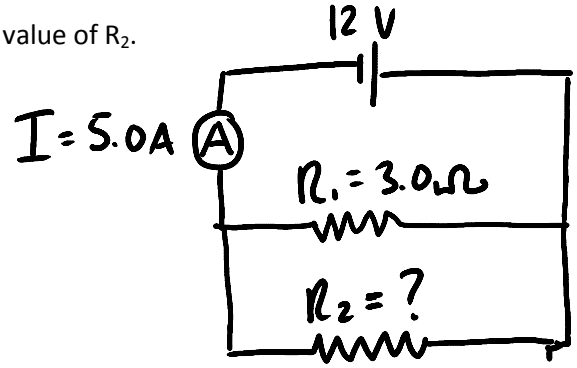
Worksheet 7.2

1) What are the values of the currents shown?



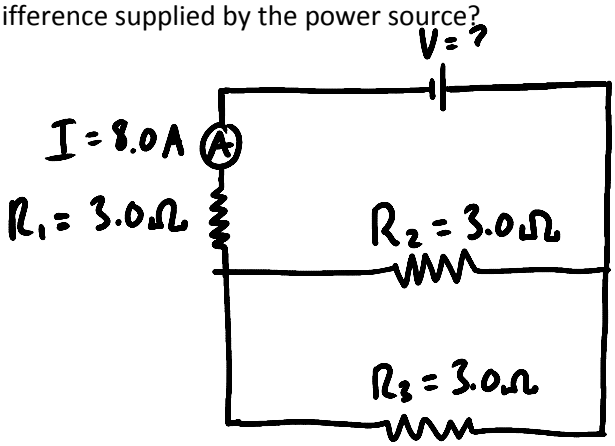
(2 A, 2 A, 2A)

2) Find the value of R_2.



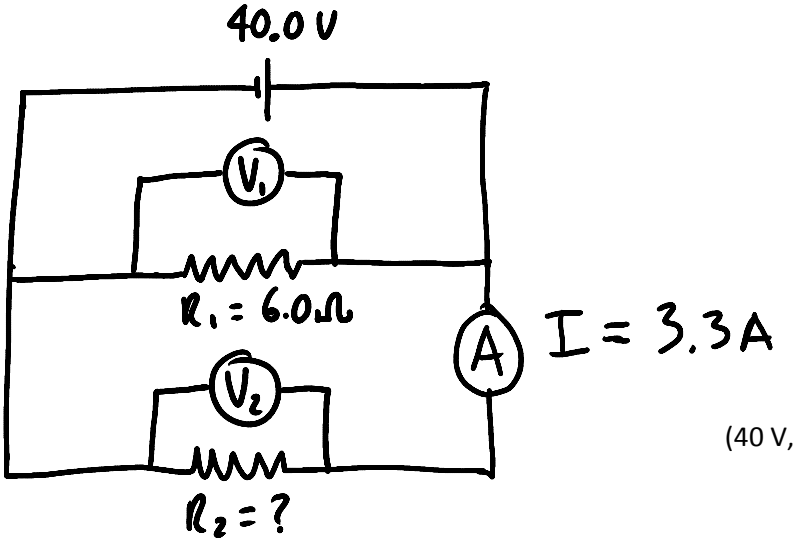
(12 Ω)

3) What is the potential difference supplied by the power source?



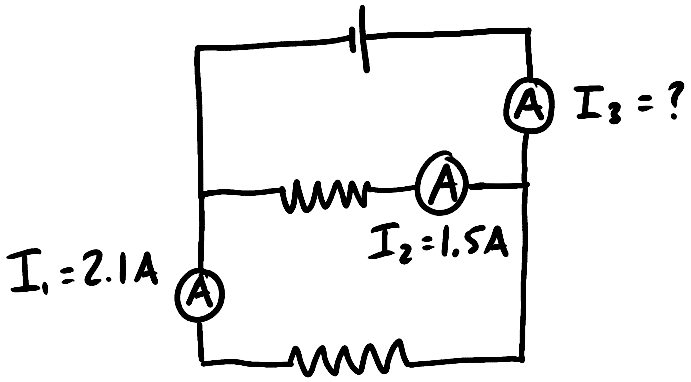
(36 V)

4) Find the values of V_1, V_2 and R_2.



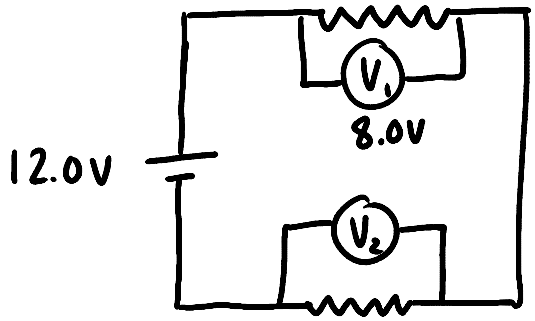
(40 V, 40V, 12 Ω)

5) Find the value of I_3.



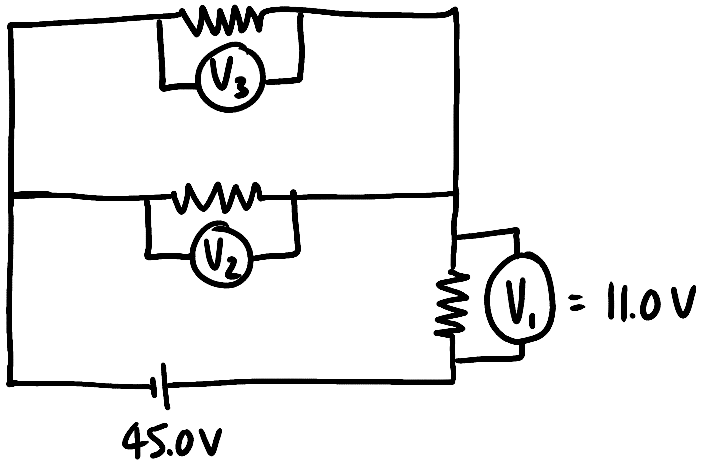
(3.6 A)

6) Find the value of V_2.



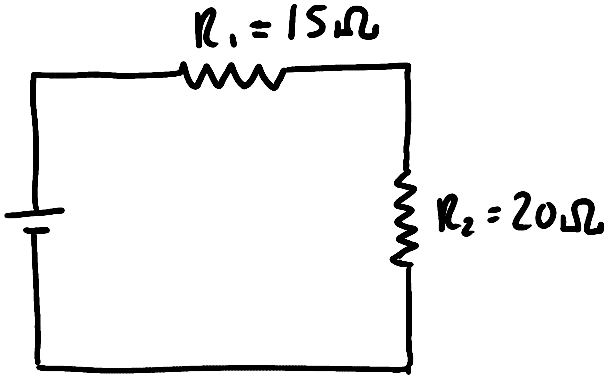
(4 V)

7) Find the value of V_2 and V_3.



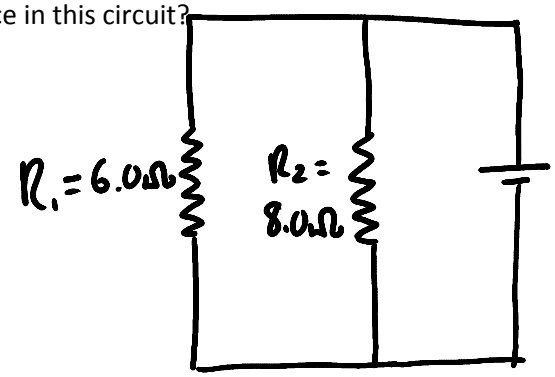
(34 V, 34 V)

8) What is the total resistance in this circuit?



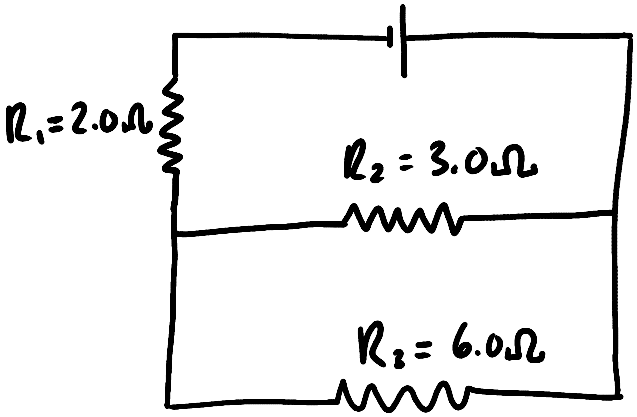
(35 Ω)

9) What is the total resistance in this circuit?



(3.4 Ω)

10) What is the total resistance of this circuit?

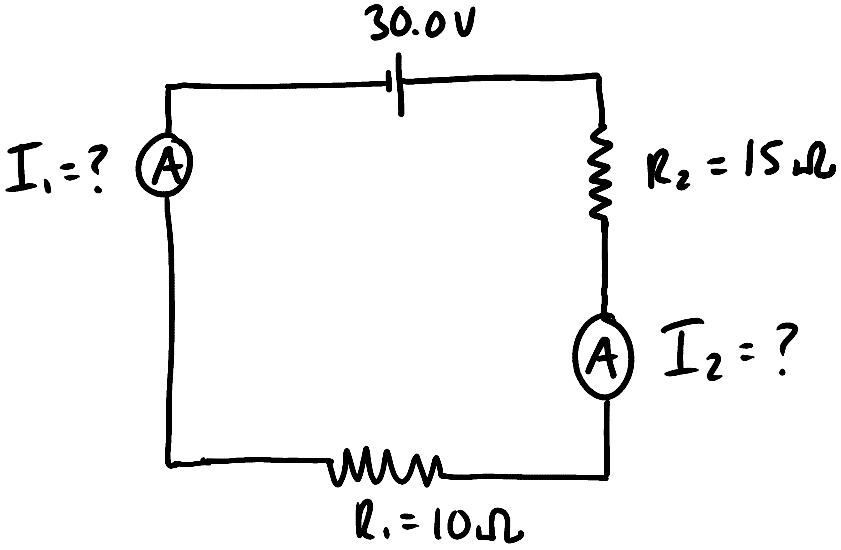


(4 Ω)

11) What is the total resistance of three resistors in parallel if their individual resistances are: 2 Ω, 4 Ω, and 8 Ω?

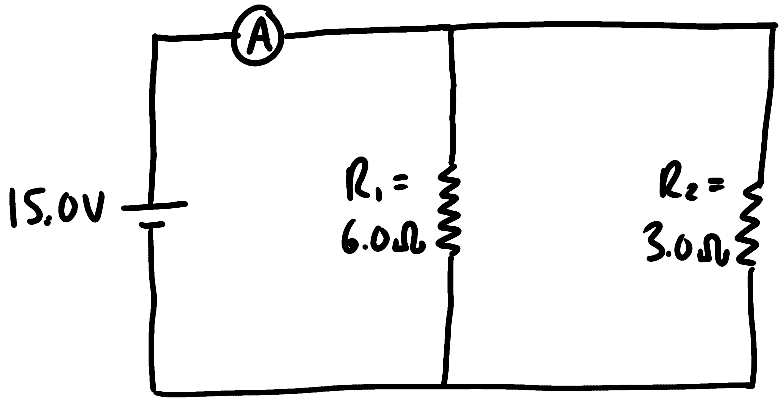
(1.1 Ω)

12) What are the values of I_1, I_2 and P_1 in the following circuit?



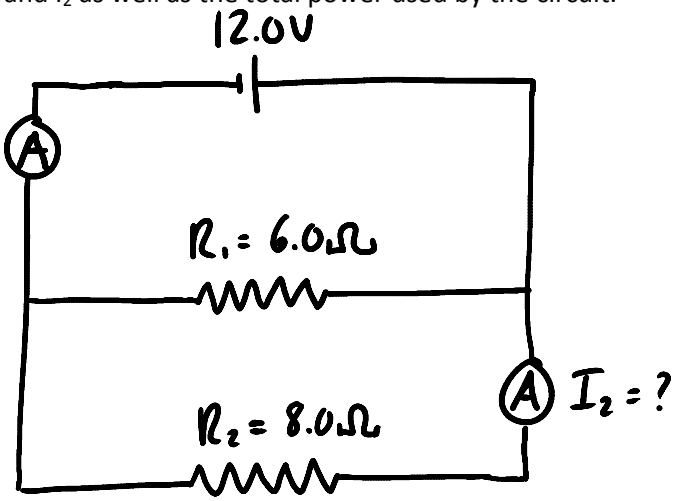
(1.2 A, 1.2 A, 14.4 W)

13) What is the value of the total current in this circuit and the power dissipated by R_1?



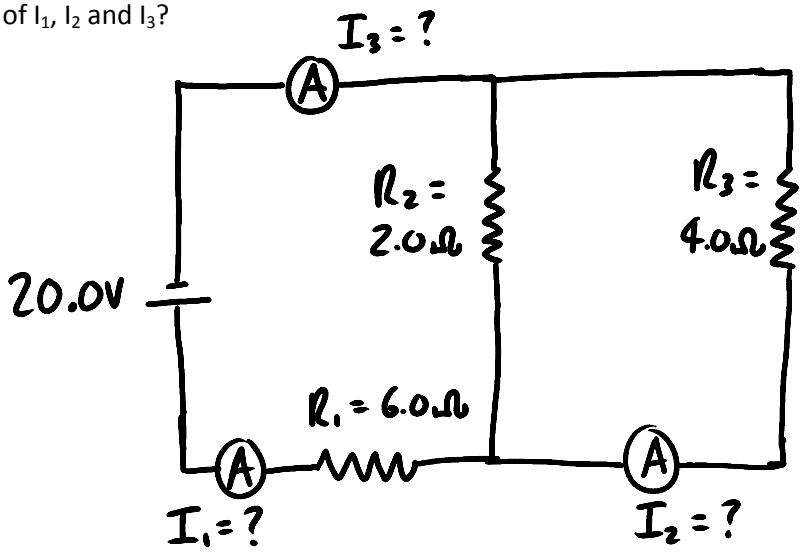
(7.5 A, 38W)

14) Find the values of the total current and I_2 as well as the total power used by the circuit.



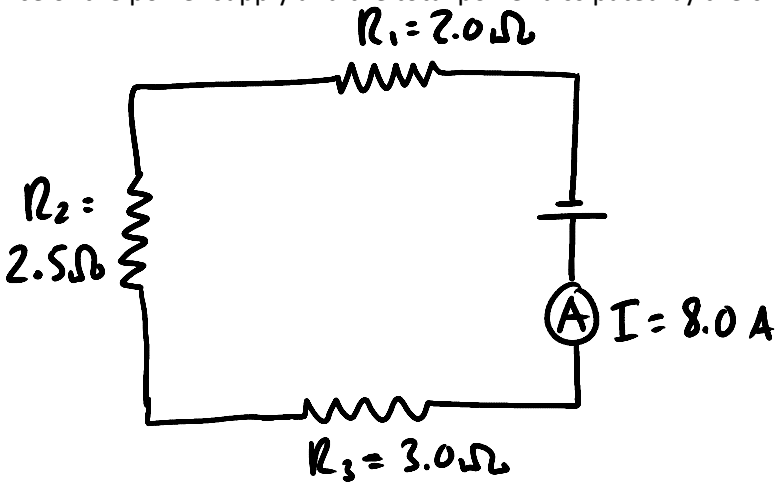
(3.5 A, 1.5 A, 42 W)

15) What are the values of I_1, I_2 and I_3?



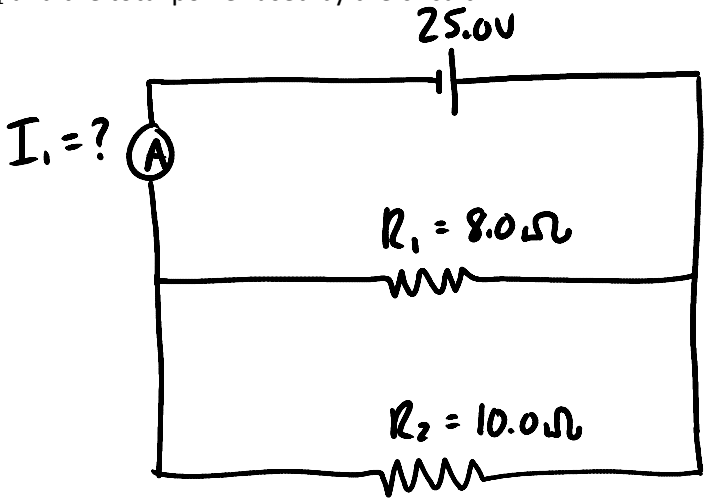
(2.7 A, 0.91 A, 2.7 A)

16) Find the potential difference of the power supply and the total power dissipated by the circuit below.



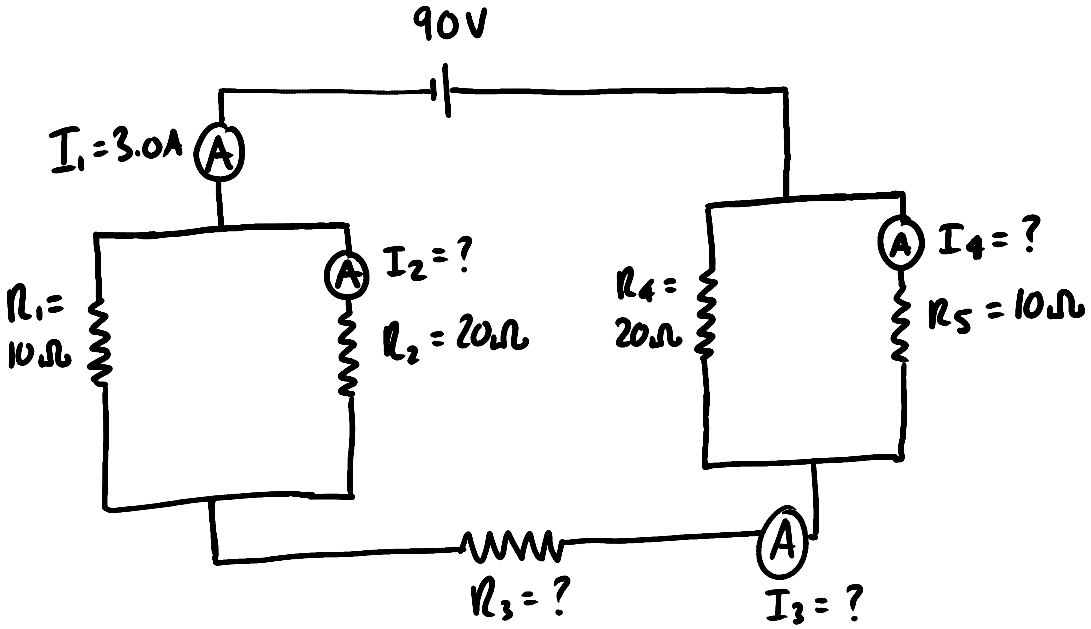
(60 V, 480 W)

17) Find the value of I_1 and the total power used by the circuit.



(5.6 A, 140 W)

18) Find R_3, I_2, I_3 and I_4.



(16.7 Ω, 1.0 A, 3.0 A, 2.0 A)

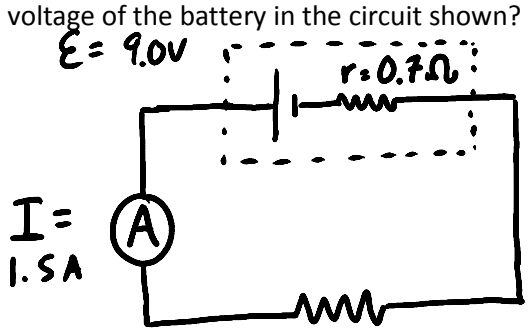
Worksheet 7.3

1) A battery in a remote control has an EMF of 1.5 V and an internal resistance of 0.3 Ω. If there is a current of 0.5 A running through the circuit, what is the terminal voltage of the battery? (1.35 V)

2) What is the EMF of a battery that has an internal resistance of 0.8 Ω and a terminal voltage of 10 V when a current of 2.4 A runs through it? (11.9 V)

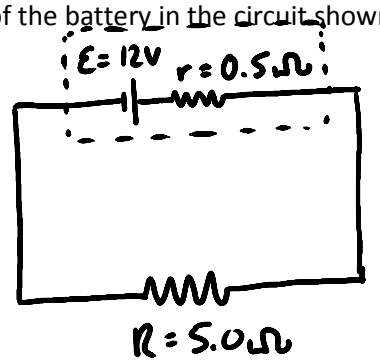
3) A battery has an EMF of 9.0 V and an internal resistance of 0.50 Ω. What is the terminal voltage when it is connected to a circuit with a resistance of 4.0 Ω? (8.0 V)

4) What is the terminal voltage of the battery in the circuit shown?



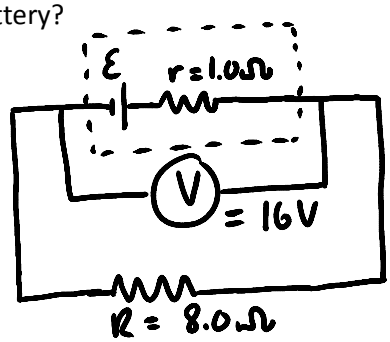
(7.95 V)

5) What is the terminal voltage of the battery in the circuit shown?



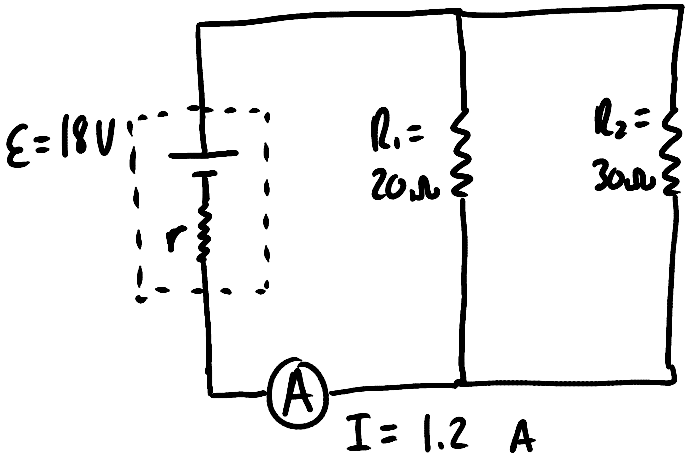
(10.9 V)

6) What is the EMF of the following battery?



(18 V)

7) Determine the internal resistance and the power dissipated by the internal resistance of the battery shown.



(3 Ω, 4.3 W)