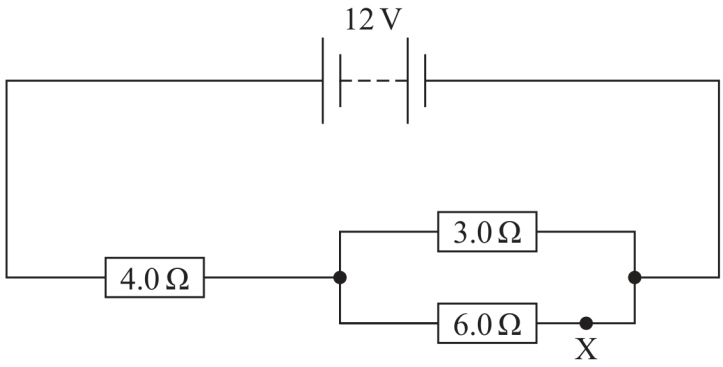
17 A student set up the circuit shown.

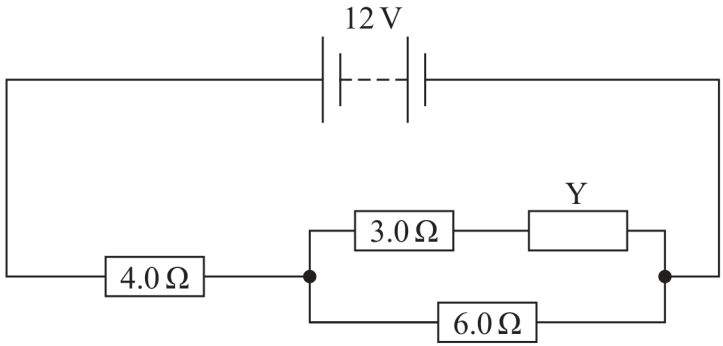


(a) Calculate the number of electrons passing point X each second.

(6)

Number of electrons in one second = ...

(b) Another resistor, Y, is added to the circuit as shown.



The student wrote the following statement.

When resistor Y is added, the resistance of the parallel section increases, the resistance of the whole circuit increases, and so, by $P = I^2R$, the power dissipated by the whole circuit also increases.

Evaluate the student's statement.

(4)

(Total for Question 17 = 10 marks)