6 This question is about magnetic fields.

(a) A student positions a thick wire vertically through the centre of a horizontal card.

The student then passes a constant current through the wire in the downward direction, as shown in diagram 1.

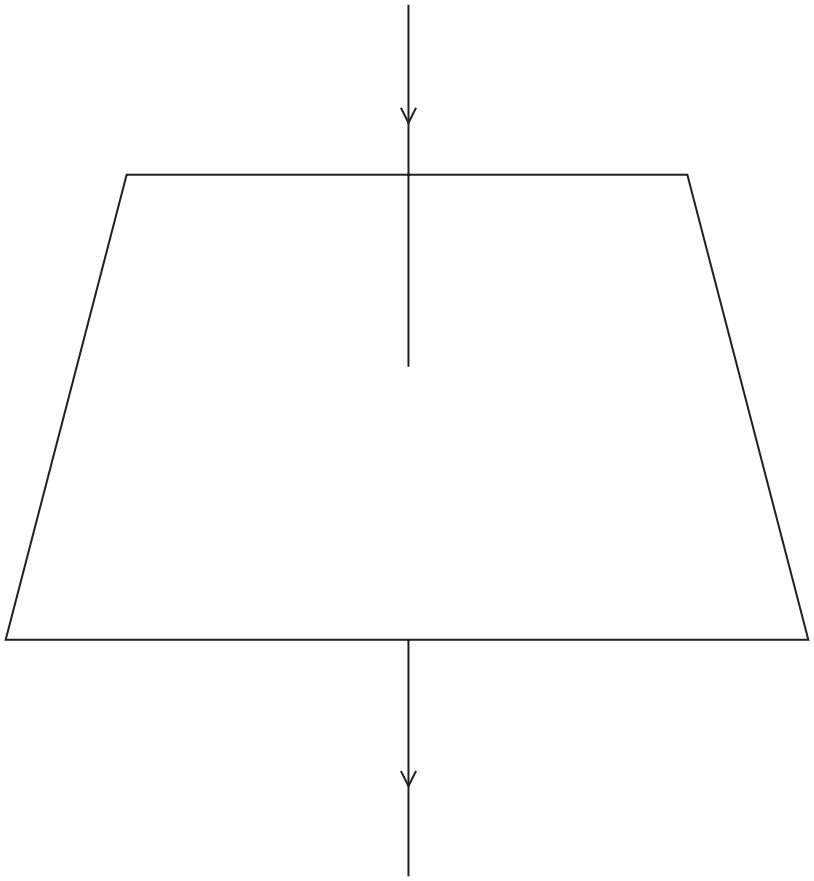

Diagram 1

(i) On diagram 1, draw the shape and direction of the magnetic field produced by the current in the wire.

(3)

(ii) Describe a method the student could use to show the shape of the magnetic field produced by the current in the wire.

(2)

(b) The student then removes the card and sets up a second wire next to the first wire, as shown in diagram 2.

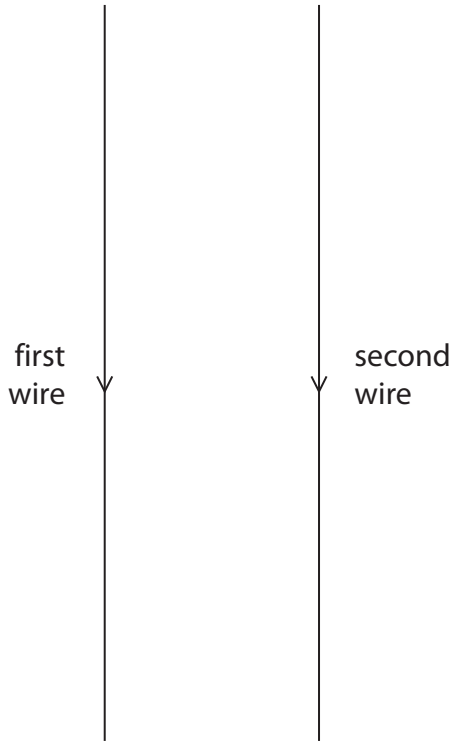

Diagram 2

The current in both wires is in the downward direction.

The student observes that the wires move towards each other.

Explain why the wires move towards each other.

(3)

(Total for Question 6 = 8 marks)