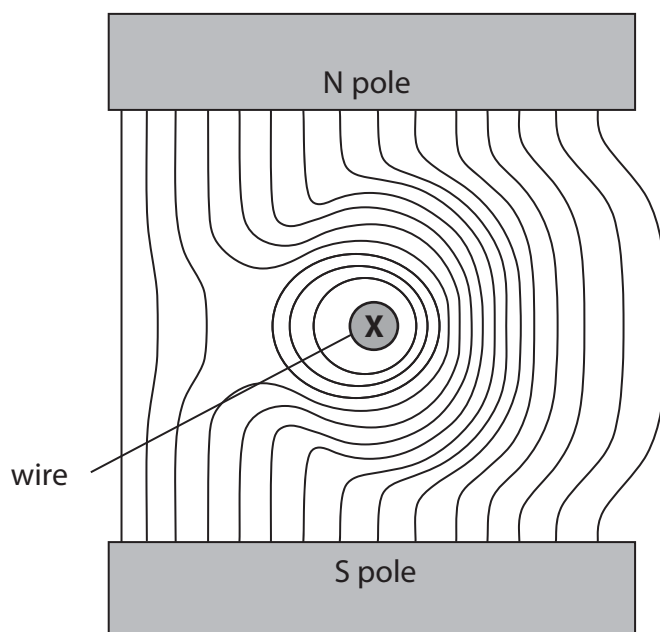


4 Magnetic field lines show the shape and direction of a magnetic field.

- (a) The diagram shows a cross-section through a wire placed between two magnetic poles.

The wire carries electric current into the page at **X**.

The shape of the magnetic field is shown.



- (i) Add arrows to two of the magnetic field lines to show the direction of the magnetic field.
- (ii) Draw an arrow on the diagram to show the direction of the force on the wire.

Label this arrow **F**.

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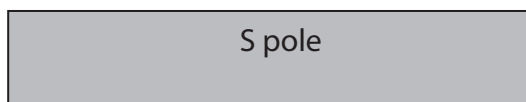
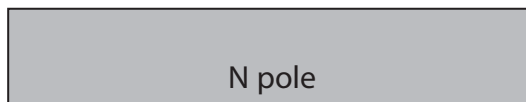
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(b) The wire is removed and the magnetic field between the poles changes.

Sketch the new magnetic field.

(2)



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- (c) Explain how you could use a plotting compass to investigate the magnetic field around a bar magnet.

You may draw a diagram to help your answer.

(3)

(Total for Question 4 = 8 marks)



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