

- 9 A stiff wire is held horizontally between the poles of a magnet, as illustrated in Fig. 9.1.

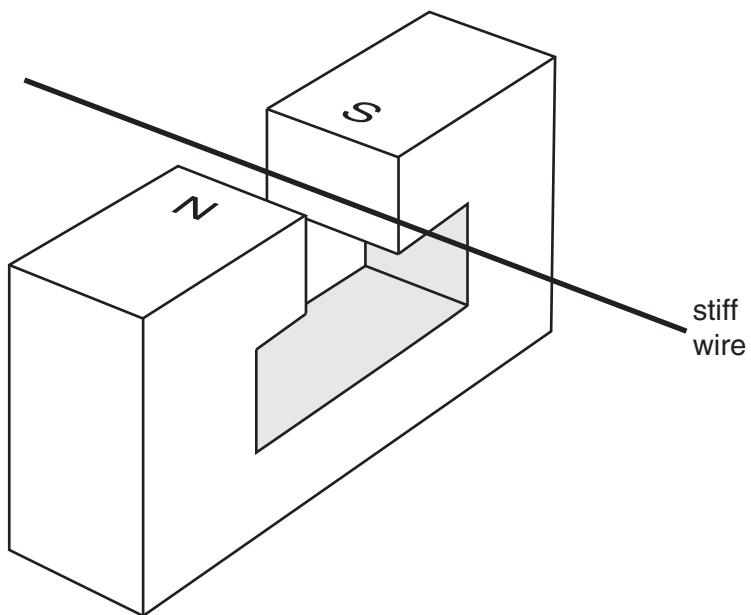


Fig. 9.1

When a constant current of 6.0A is passed through the wire, there is an additional downwards force on the magnet of 0.080 N.

- (a) On Fig. 9.1, draw an arrow on the wire to show the direction of the current in the wire. Explain your answer.

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[3]

- (b) The constant current of 6.0A is now replaced by a low-frequency sinusoidal current. The root-mean-square (r.m.s.) value of this current is 2.5A.

Calculate the difference between the maximum and the minimum forces now acting on the magnet.

difference = N [4]

[Total: 7]