

- 7 (a) The current  $I$  in a metal wire is given by the expression

$$I = Anve.$$

State what is meant by the symbols  $A$  and  $n$ .

$A$ : .....

$n$ : .....

[2]

- (b) The diameter of a wire XY varies linearly with distance along the wire as shown in Fig. 7.1.

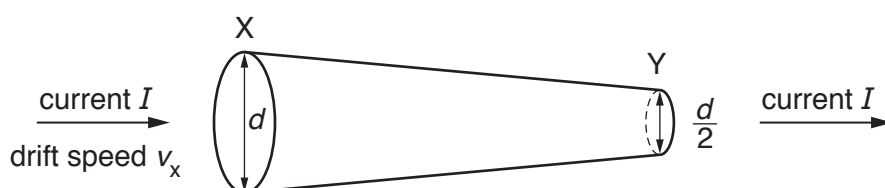


Fig. 7.1

There is a current  $I$  in the wire. At end X of the wire, the diameter is  $d$  and the average drift speed of the free electrons is  $v_x$ . At end Y of the wire, the diameter is  $\frac{d}{2}$ .

On Fig. 7.2, sketch a graph to show the variation of the average drift speed with position along the wire between X and Y.

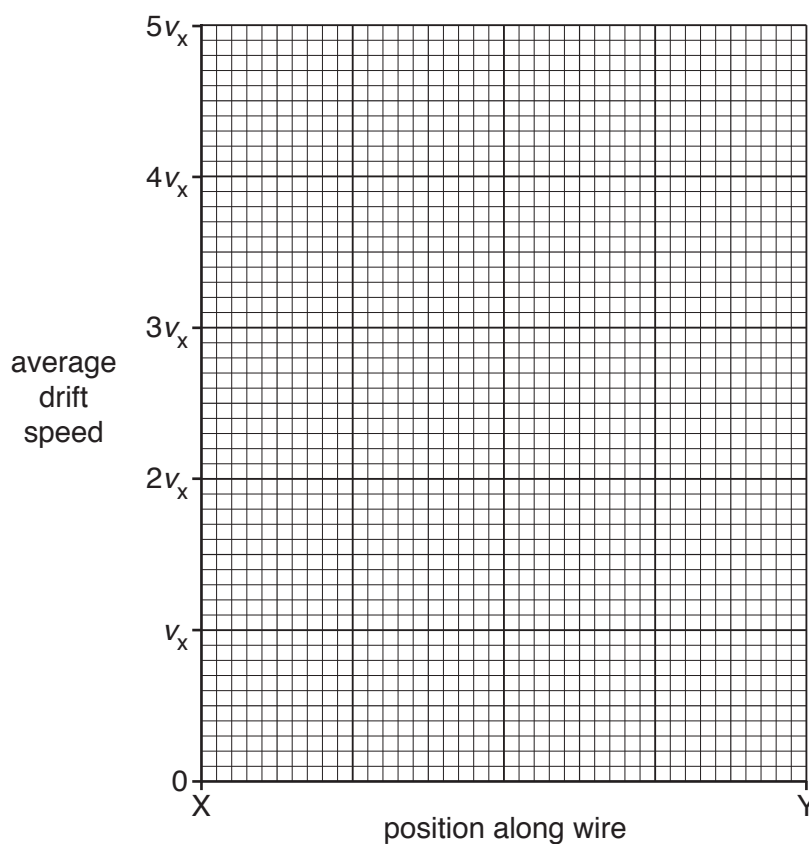


Fig. 7.2

[2]

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