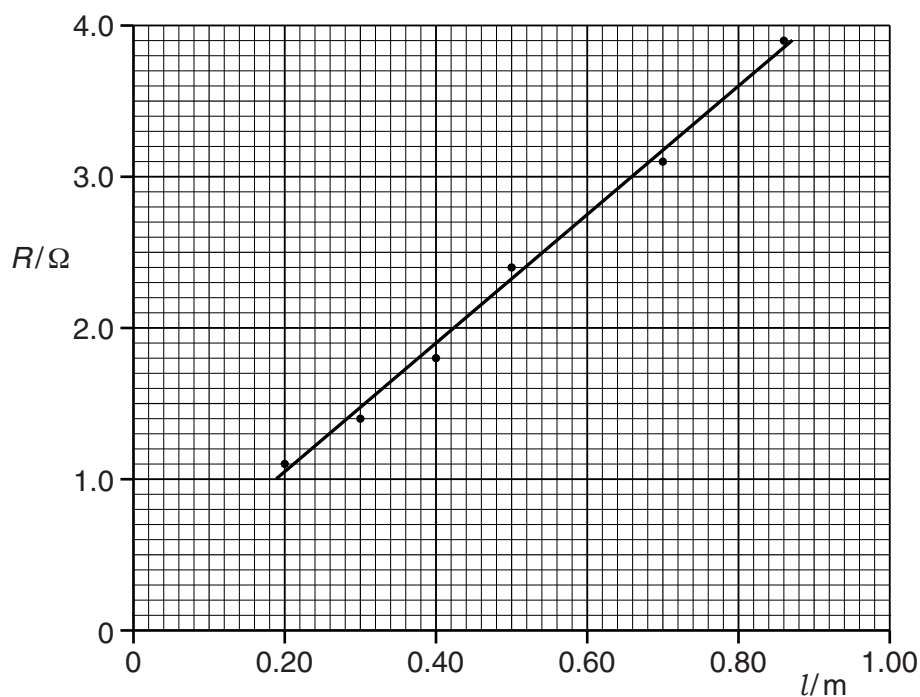


- 3 The resistance  $R$  of a uniform metal wire is measured for different lengths  $l$  of the wire. The variation with  $l$  of  $R$  is shown in Fig. 3.1.



**Fig. 3.1**

- (a) The points shown in Fig. 3.1 do not lie on the best-fit line. Suggest a reason for this.

.....  
 ..... [1]

- (b) Determine the gradient of the line shown in Fig. 3.1.

gradient = ..... [2]

- (c) The cross-sectional area of the wire is  $0.12 \text{ mm}^2$ .

your answer in (b) to determine the resistivity of the metal of the wire.

resistivity = .....  $\Omega \text{ m}$  [3]

- (d) The resistance  $R$  of different wires is measured. The wires are of the same metal and same length but have different cross-sectional areas  $A$ .

On Fig. 3.2, sketch a graph to show the variation with  $A$  of  $R$ .



**Fig. 3.2**

[2]