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.

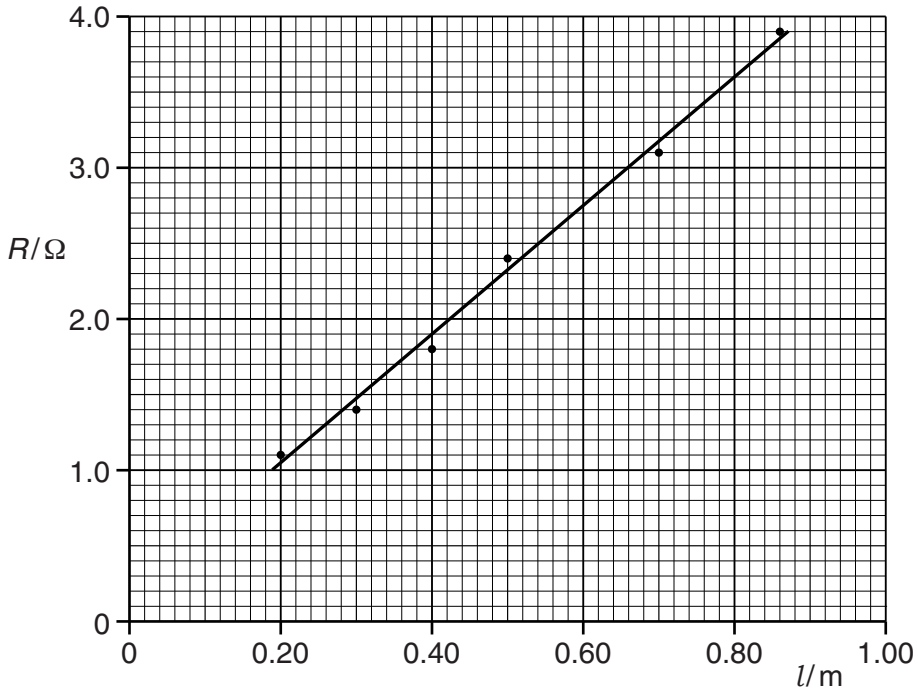

Fig. 3.1

(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 mm^2.

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

resistivity = ... Ω 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]