

Section A

Answer **all** the questions in this section.

- 1 (a) The variation with volume V of the pressure p of a fixed mass of gas at constant temperature is shown in Fig. 1.1.

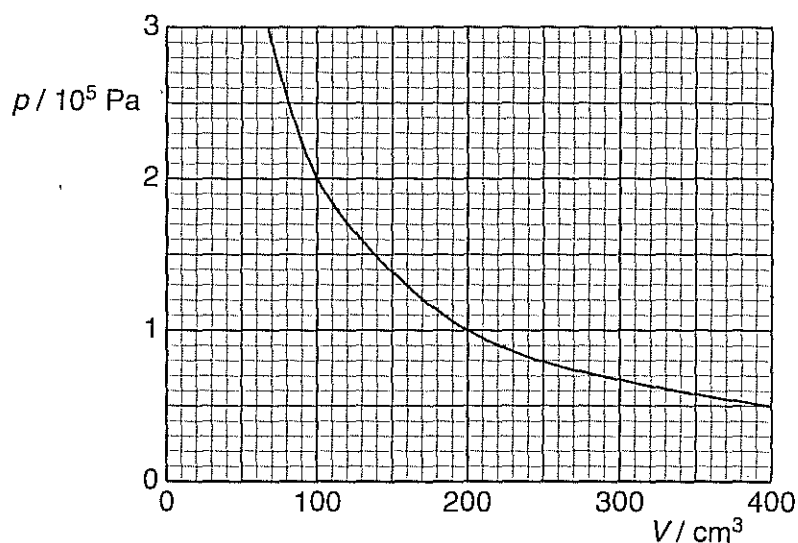


Fig. 1.1

- (i) Using values from Fig. 1.1, plot a second graph using the axes drawn in Fig. 1.2, to show that p is inversely proportional to V .

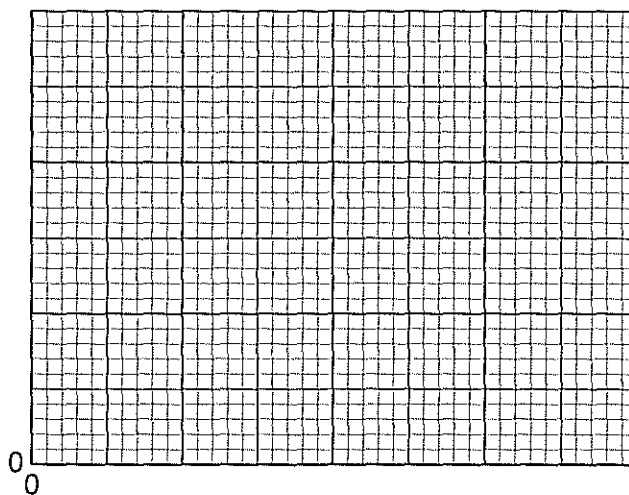


Fig. 1.2

[2]

- (ii) State how inverse proportion is demonstrated by your graph.

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[1]

- (b) Fig. 1.3 shows the variation with displacement d of the force F applied to an object. F and d are in the same direction.

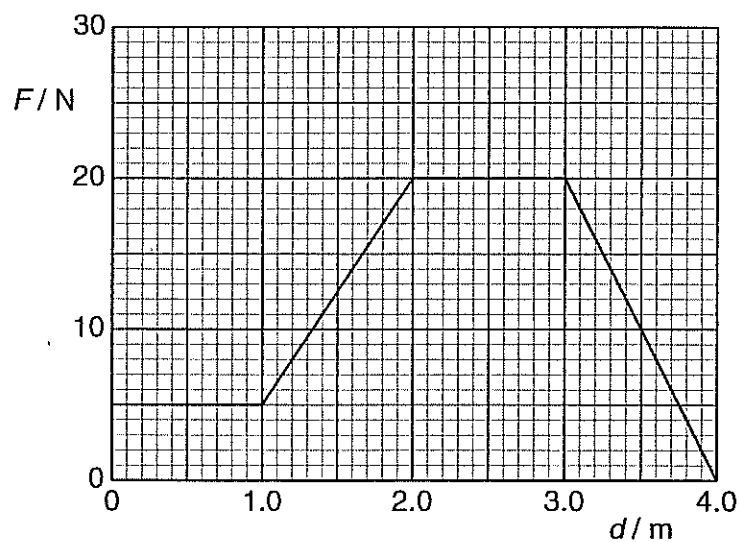


Fig. 1.3

On Fig. 1.4, draw a graph showing the variation with d of the work done.

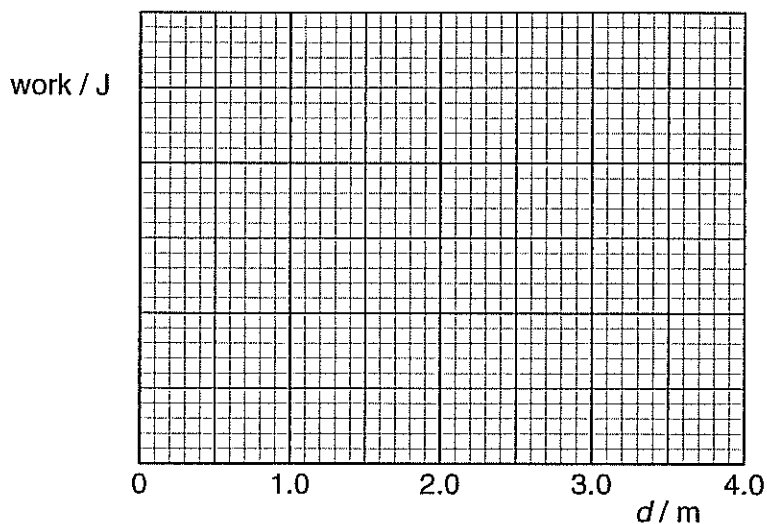


Fig. 1.4

[4]

- (c) Measurements are made of the Earth's gravitational field strength g for different distances r from the centre of the Earth. Fig. 1.5 shows the variation with $\lg r$ of $\lg g$.

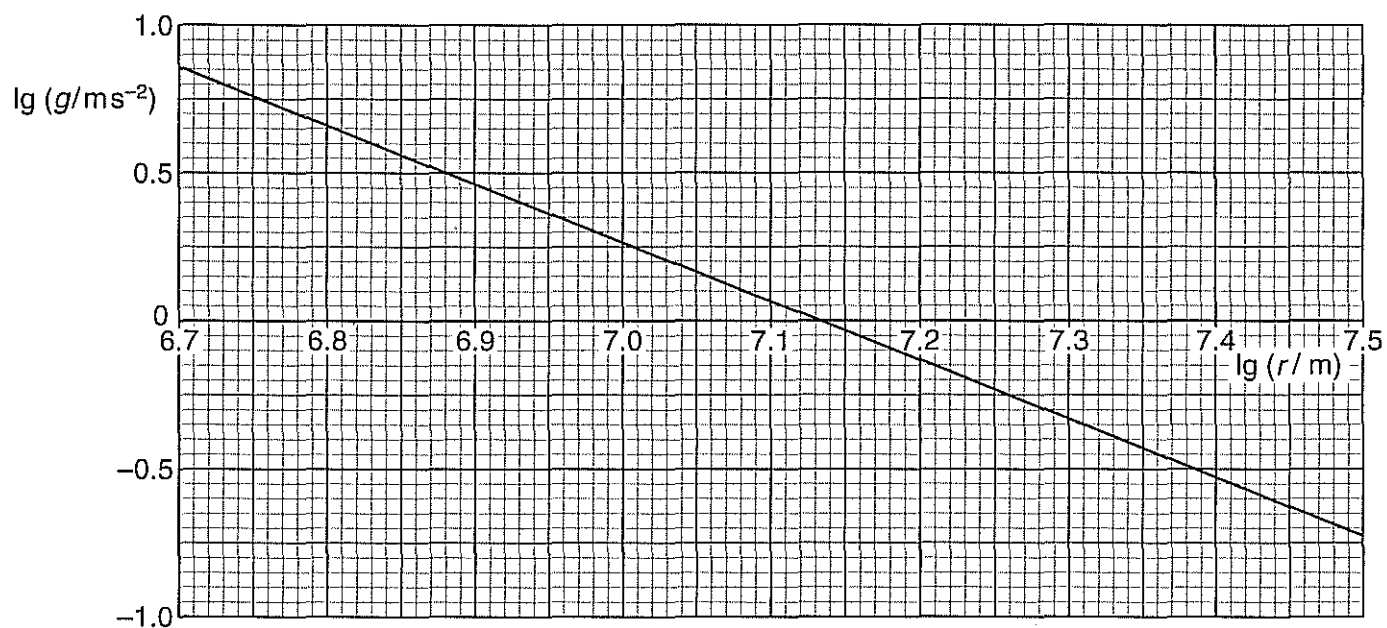


Fig. 1.5

- (i) Determine the gradient of the graph. Show your working.

gradient = [3]

- (ii) Summarise what is suggested by the value of the gradient of this graph.

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 [2]