

A



A-level

PHYSICS

Paper 3

Section A

7408/3A

Diagram Booklet

[Turn over]

FIGURE 1

FIGURE 1 shows apparatus used to measure the speed of sound in a steel rod.

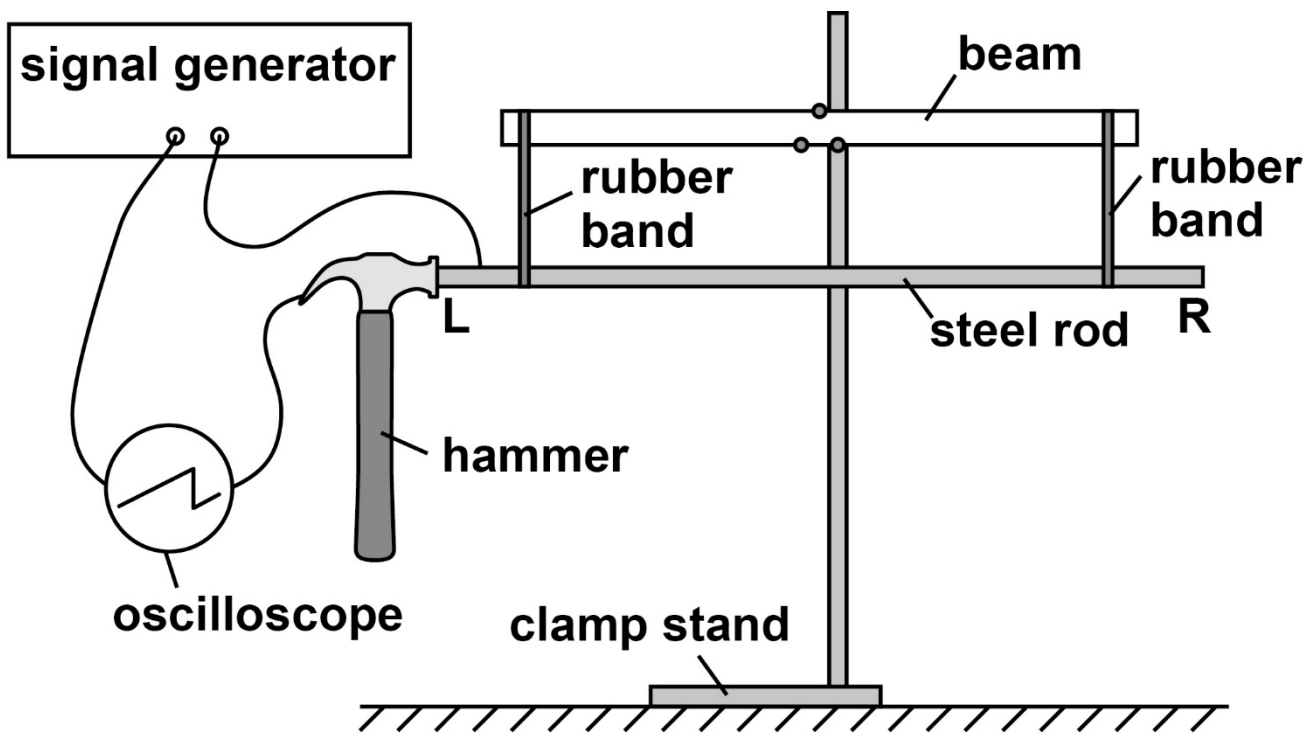
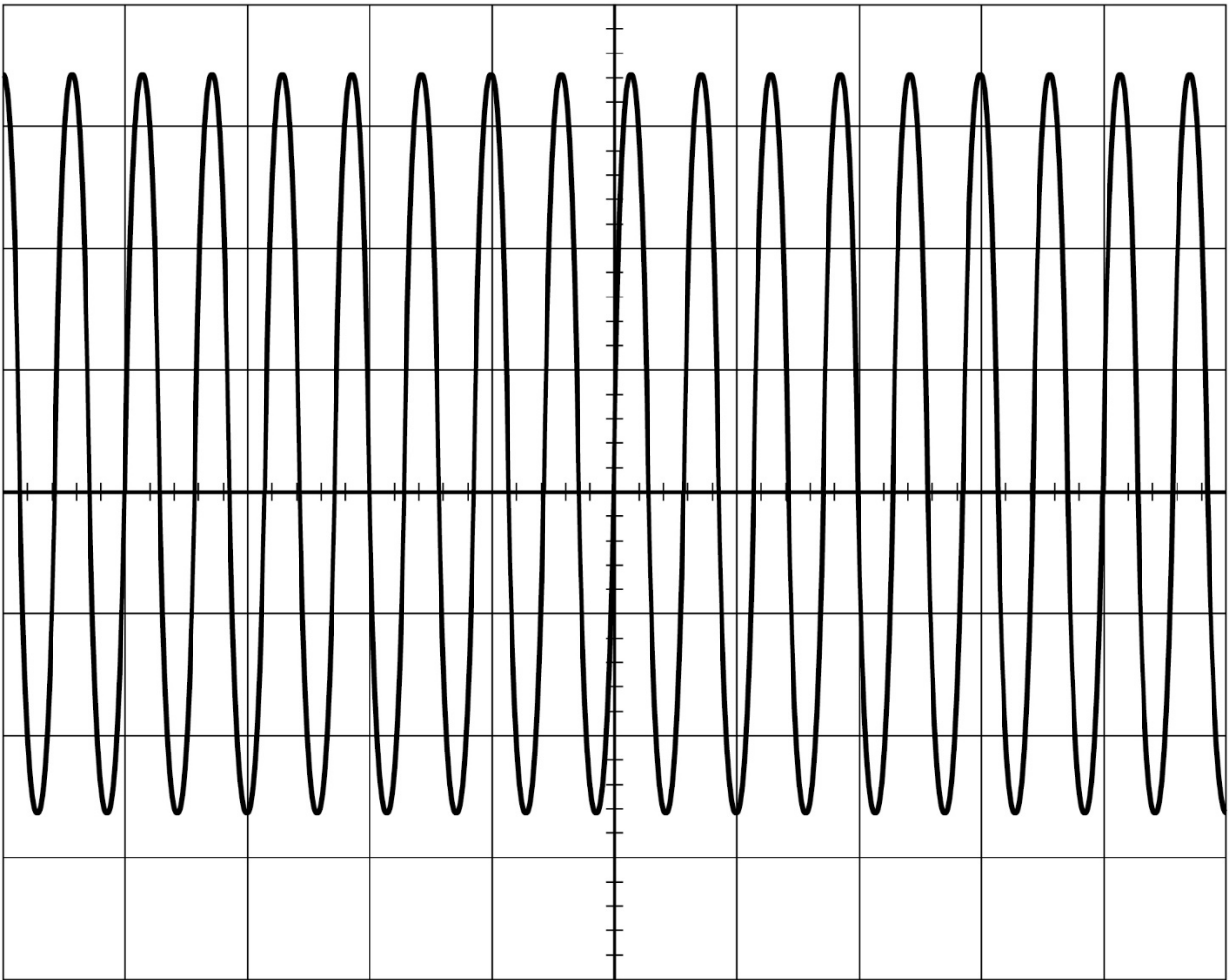


FIGURE 2

FIGURE 2 shows the waveform then displayed on the oscilloscope.



[Turn over]

FIGURE 3

FIGURE 3 shows the waveform produced by the brief contact between the hammer and L.
Note that the waveform has now been centred vertically.

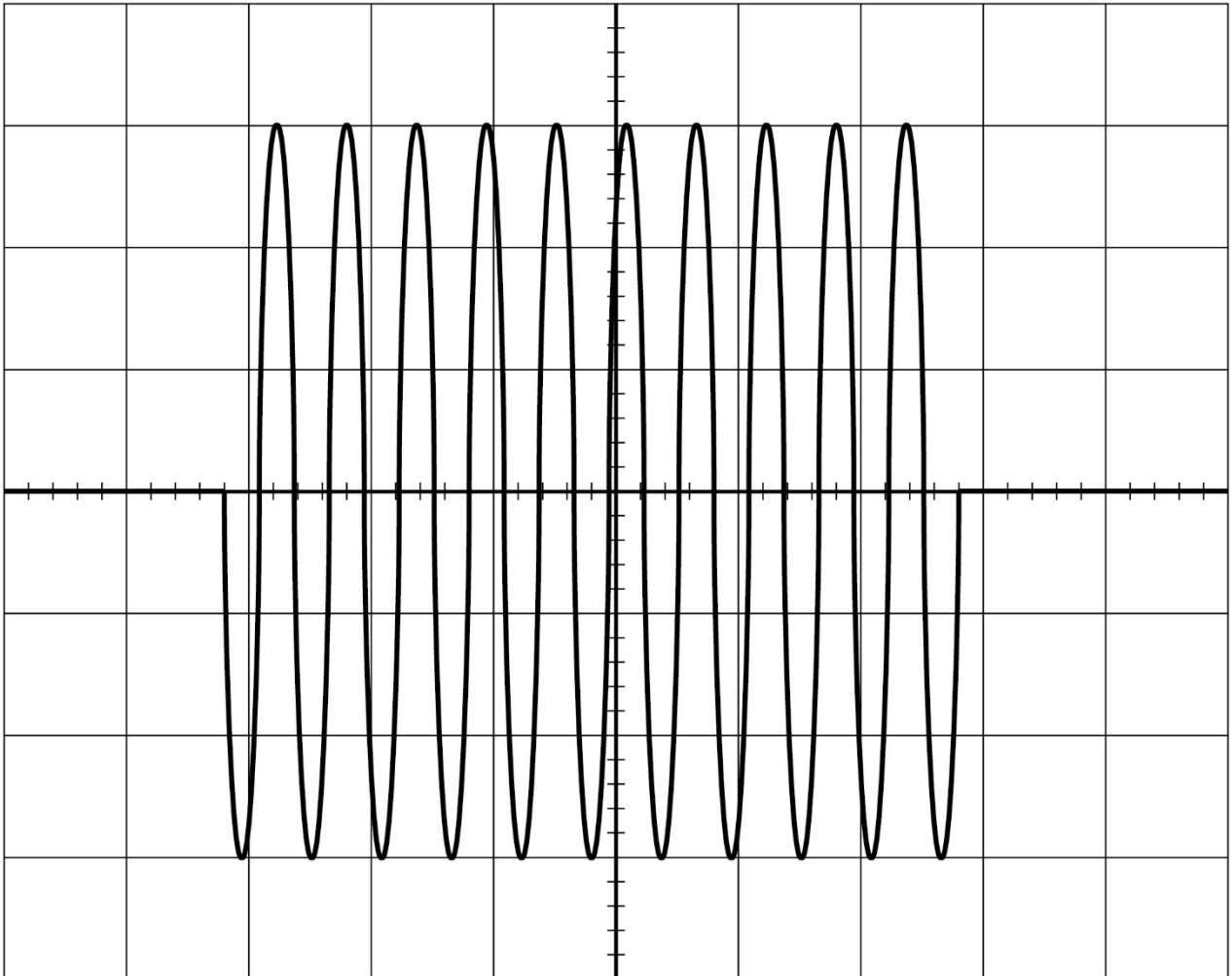
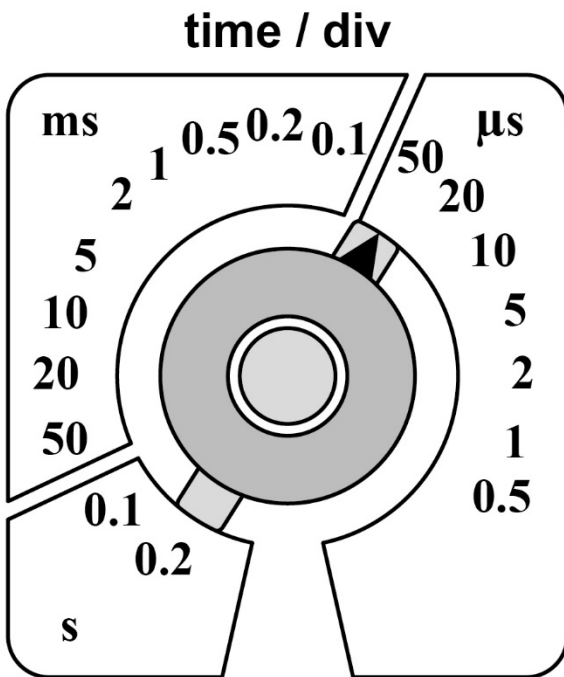


FIGURE 4

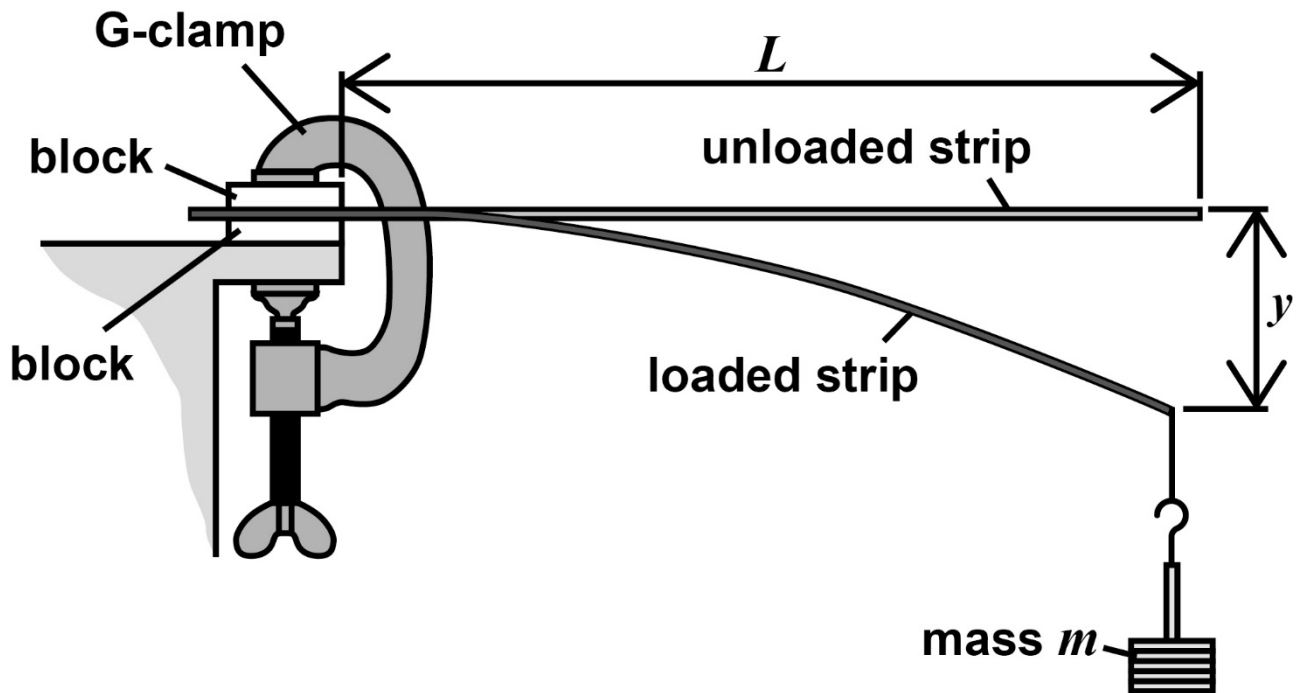
FIGURE 4 shows the time-base setting of the oscilloscope.



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FIGURE 5

FIGURE 5 shows a strip of steel of rectangular cross-section clamped at one end. The strip extends horizontally over the edge of a bench.



end view of unloaded steel strip

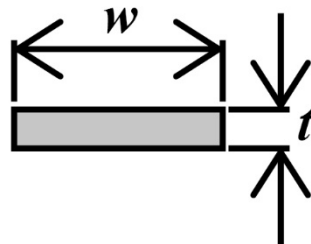
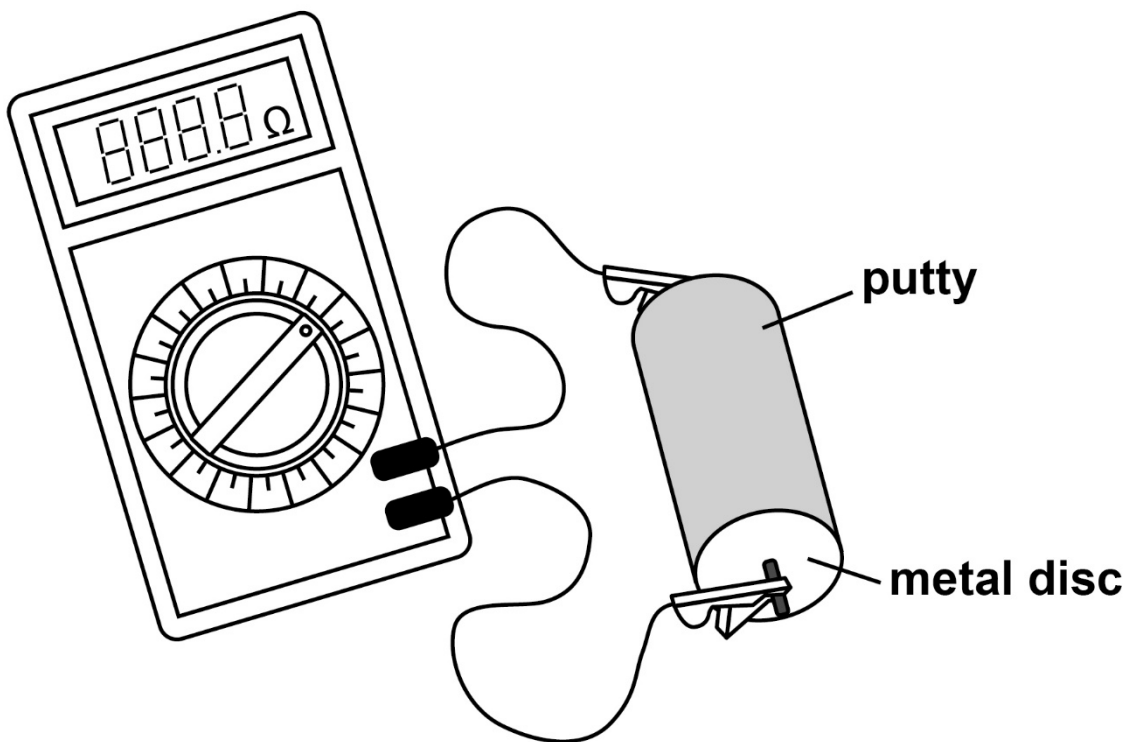


FIGURE 7

A student is given some putty to form into cylinders.

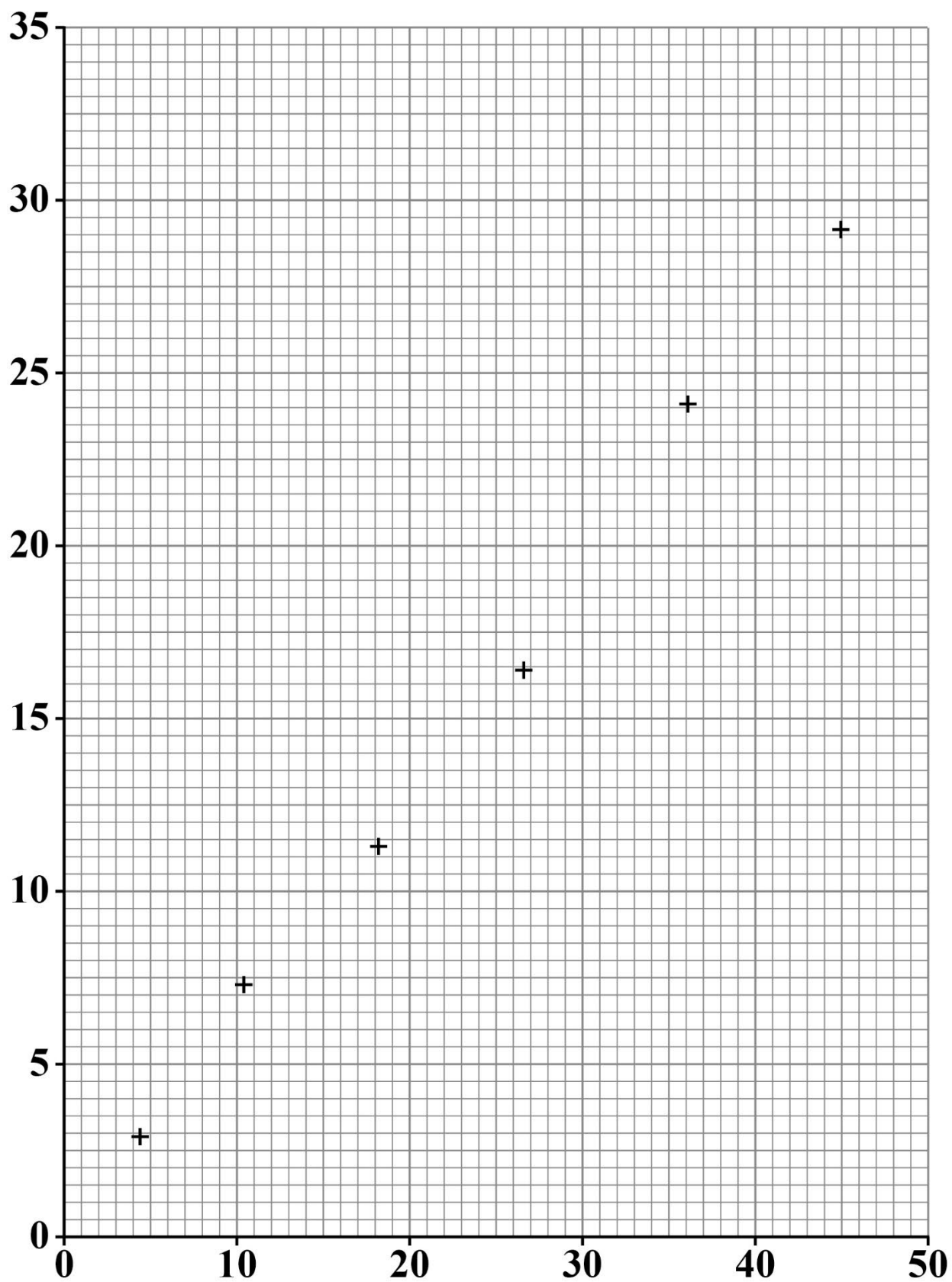
To find the resistance of a cylinder, metal discs are placed in contact with the ends of the cylinder and connected to a resistance meter.

FIGURE 7 shows the apparatus.



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R / Ω



$L^2 / 10^{-3} \text{ m}^2$

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FIGURE 9

FIGURE 9 shows air trapped in a vertical cylinder by a valve and a piston P.

The valve remains closed throughout the experiment.

A mass is placed on top of P.

P moves downwards and the volume of the trapped air decreases.

There are no air leaks and there is no friction between the cylinder and P.

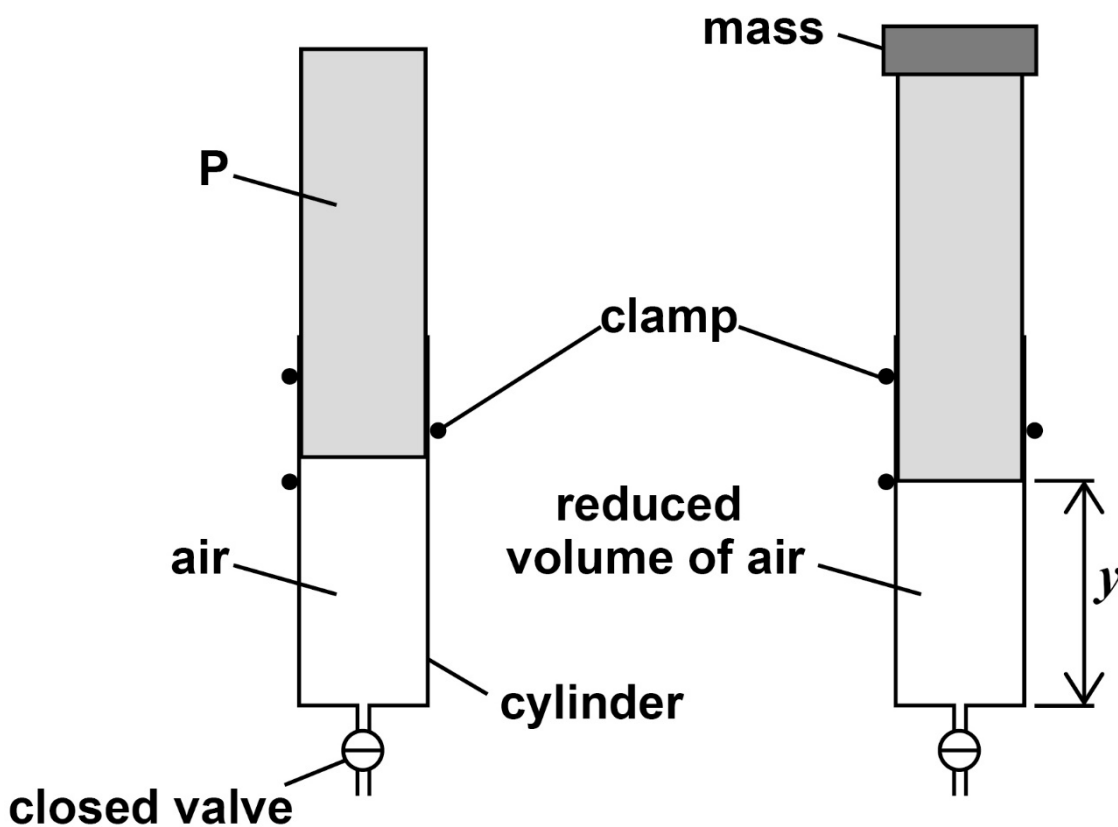
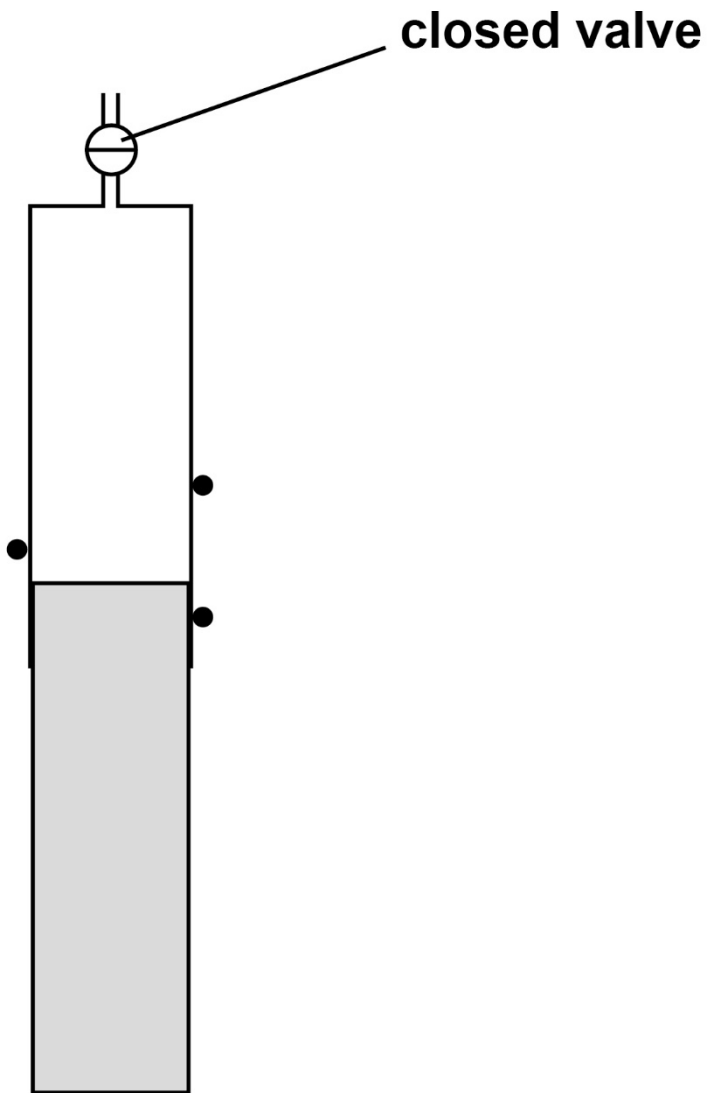


FIGURE 11



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FIGURE 12

FIGURE 12 shows apparatus used in schools to investigate Boyle's law.

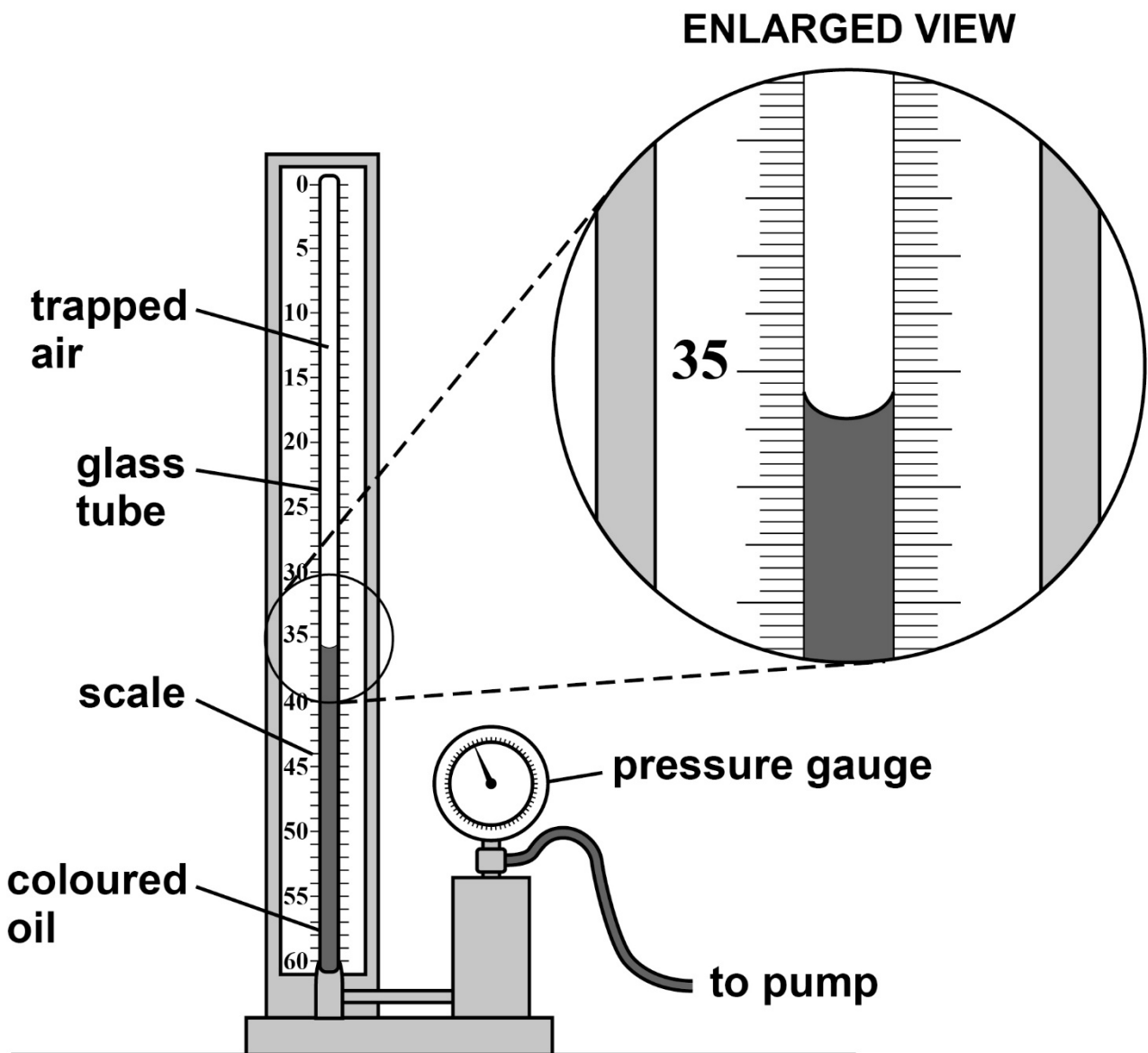
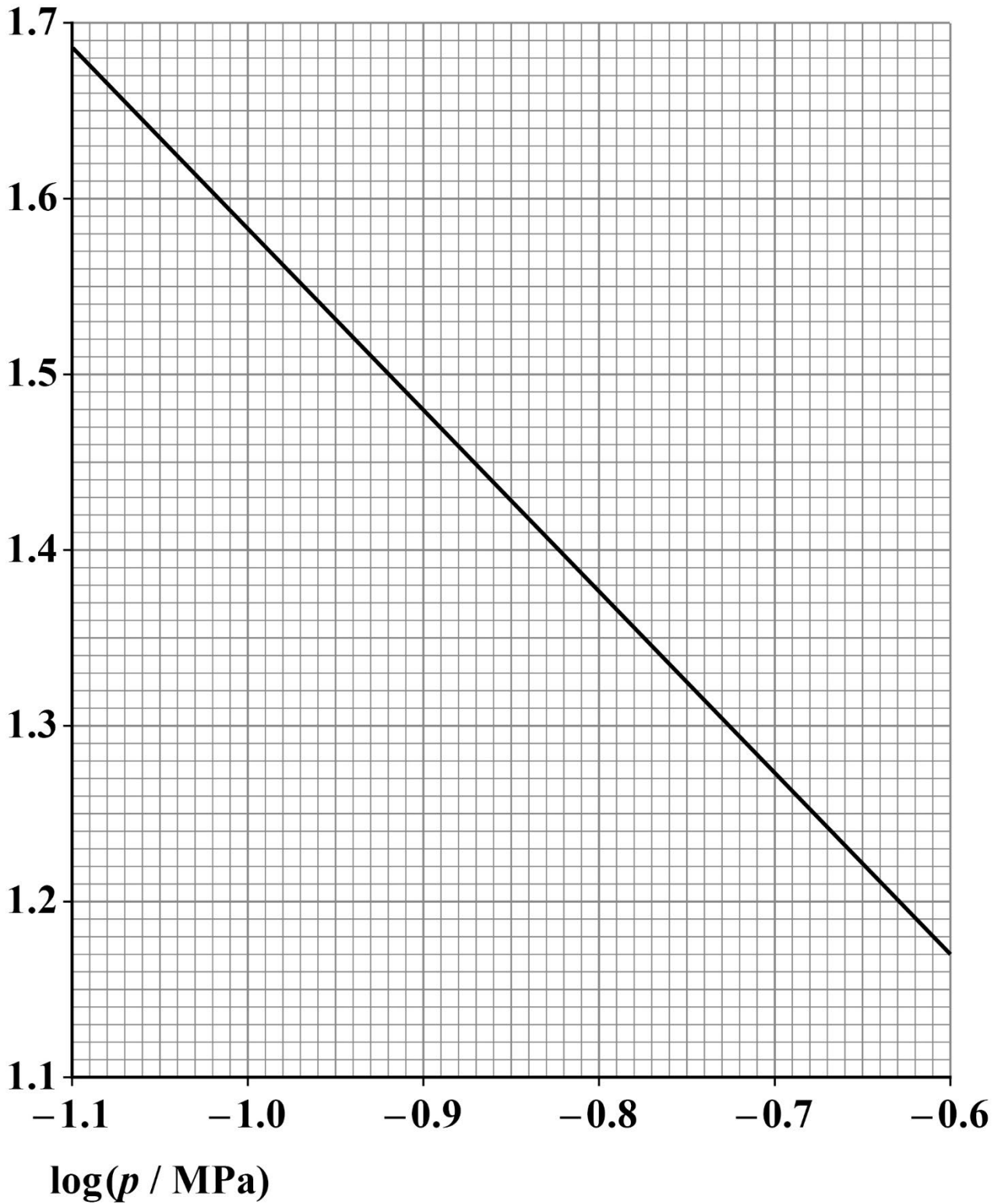


FIGURE 13

 $\log(V / \text{cm}^3)$ 

END OF DIAGRAMS

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