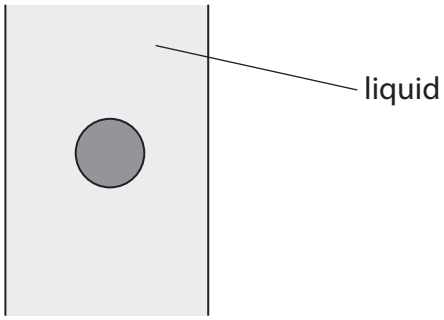
7 A student investigates the terminal velocity of steel balls falling through a thick liquid.

(a) (i) On the diagram, draw and label the forces acting on a steel ball as it falls at terminal velocity.

(3)



(ii) Explain, in terms of forces, what is meant by terminal velocity.

(3)

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(b) The student has five steel balls of different diameter and some thick oil.

(i) Name two additional pieces of apparatus the student would need in order to investigate the terminal velocity of the steel balls falling through the oil.

(2)

1 .....

2 .....

(ii) Describe a method the student could use to investigate how the diameter of a steel ball affects the terminal velocity.

In your answer, you should include

- a labelled diagram
- the measurements that the student should take
- how the student could use the measurements to find the terminal velocity.

(5)

(c) Explain which type of graph the student should use to display his results.

(2)

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(Total for Question 7 = 15 marks)