9 (a) Diagram 1 shows a plastic bottle containing water.

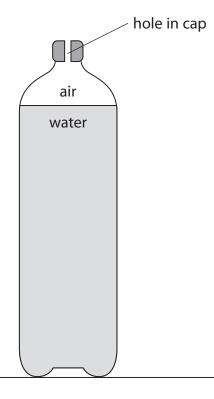


Diagram 1

(i) State the formula linking pressure difference, height, density and gravitational field strength, g.

(1)

(ii) The pressure difference between the surface of the water and the water at the bottom of the bottle is 2300 Pa.

Calculate the depth of water in the bottle.

Give your answer in cm. [density of water = 1000 kg/m³]

(3)

depth = cm



(b) Three holes are made in the bottle at positions A, B and C.

Diagram 2 shows the path of the water leaving the bottle from hole B.

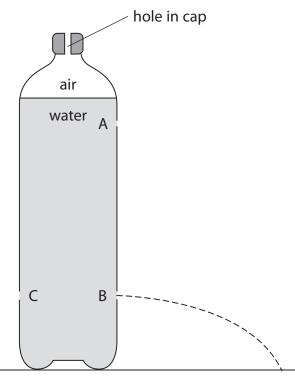


Diagram 2

(i) Draw a line on diagram 2 to show the path of the water leaving the bottle from hole A.

(1)

(ii) Explain the path of the water leaving the bottle from hole A.

(2)



| Explain the shape of the path of the water le | eaving the bottle from hole C |
|---|-----------------------------------|
| Explain the shape of the path of the water is | (3) |
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| | |
| iv) Suggest why there is a hole in the cap of the | |
| | (1) |
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| | (Total for Question 9 = 11 marks) |
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