9 This question is about air pressure.

(a) During an aeroplane flight, a passenger drinks some water from a plastic bottle.

The passenger then replaces the top to seal the bottle, as shown in diagram 1.

Diagram 1

The air pressure outside the bottle is 80 kPa.

State the air pressure inside the bottle just after the bottle has been sealed.

(1)

air pressure = ... kPa

(b) As the aeroplane descends, the air pressure inside the aeroplane changes.

When the aeroplane lands, the passenger notices that the plastic bottle has collapsed, as shown in diagram 2.

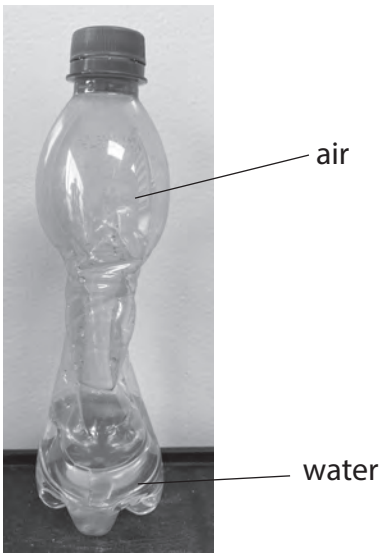

Diagram 2

Explain why the bottle has collapsed.

(2)

(c) Explain how gas molecules in the air exert a pressure on the surface of the bottle.

(3)

(Total for Question 9 = 6 marks)