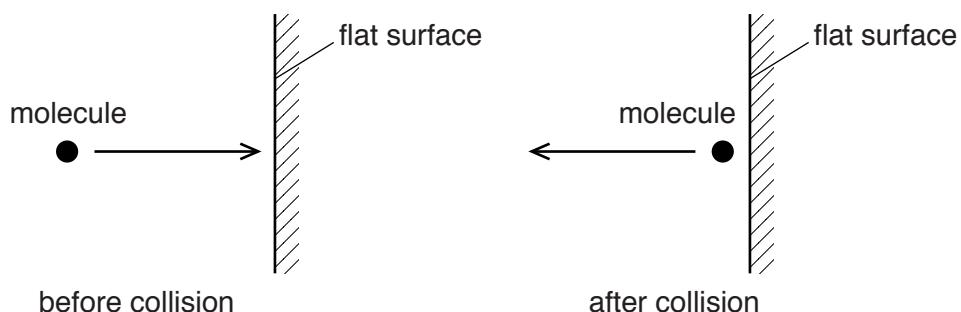


- 4 (a) A gas molecule has a mass of  $6.64 \times 10^{-27}$  kg and a speed of  $1250\text{ ms}^{-1}$ . The molecule collides normally with a flat surface and rebounds with the same speed, as shown in Fig. 4.1.



**Fig. 4.1**

Calculate the change in momentum of the molecule.

$$\text{change in momentum} = \dots\dots\dots\dots\dots \text{Ns} \quad [2]$$

- (b) (i) Use the kinetic model to explain the pressure exerted by gases.

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[3]

- (ii) Explain the effect of an increase in density, at constant temperature, on the pressure of a gas.

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[1]