Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

$V = 0.25 \times 22.7 = \mathbf{5.7\ dm^3}$

2.2

$n = \dfrac{pV}{RT} = \dfrac{1.00 \times 10^5 \times 2.50 \times 10^{-4}}{8.31 \times 300} = 0.0100$ mol; $M = \dfrac{0.50}{0.0100} = \mathbf{50\ g\ mol^{-1}}$

2.3

the particles gain kinetic energy and move faster; they hit the walls more often; and with more force, so the pressure rises

2.4

$V_2 = 200 \times \dfrac{353}{293} \times \dfrac{100}{150} = \mathbf{161\ cm^3}$

3.1

(a) any two: the volume of the particles is negligible; no forces between the particles; random motion; elastic collisions

(b) the particles are pushed close together; their own volume is no longer small compared with the volume of the container

(c) high temperature and low pressure

(d) the particles move slowly, so the attractive forces between them become significant

exercises.lol exercises.com.cn