

4 Gases and structures – Part 1 —Answers

Answers

Work through these after trying the questions yourself.

4.1 The fast-moving particles collide with the walls; each collision exerts a tiny force, and the many collisions together make the pressure.

4.2 The particles have zero volume; there are no forces of attraction between them.

4.3 At low pressure and high temperature.

4.4 (a) $27 + 273 = 300\text{ K}$ \ (b) $127 + 273 = 400\text{ K}$.

4.5 $V = nRT/p = (2.0 \times 8.31 \times 300)/(1.0 \times 10^5) = 0.0499\text{ m}^3$ (0.050 m^3).

4.6 $n = \frac{pV}{RT} = \frac{(1.0 \times 10^5)(0.10)}{8.31 \times 400} = \frac{1.0 \times 10^4}{3324} \approx 3.0\text{ mol}$.