Solutions

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

2.1

- The average kinetic energy of the particles

2.2

- He — it has a smaller molar mass, so at equal kinetic energy it moves faster

2.3

- The peak shifts to higher speed and the curve flattens/broadens

3.1 B

- elastic collisions

3.2

(a)

- Equal — average kinetic energy depends only on temperature

(b)

- H_2 is faster; it has a smaller mass, so for the same $KE = \frac{1}{2}mv^2$ it has a larger v

3.3

- Heating shifts the peak to a higher speed and lowers/broadens it (a wider spread with more fast molecules); the total area (number of molecules) stays the same