

77. We solve

$$\sqrt{\frac{3RT}{M_{\text{helium}}}} = \sqrt{\frac{3R(293 \text{ K})}{M_{\text{hydrogen}}}}$$

for T . With the molar masses found in Table 20-1, we obtain

$$T = (293 \text{ K}) \left(\frac{4.0}{2.02} \right) = 580 \text{ K}$$

which is equivalent to 307°C .