2 An ideal gas occupies a container of volume $4.5 \times 10^3\,cm^3$ at a pressure of $2.5 \times 10^5\,Pa$ and a temperature of 290 K.

For Examiner's Use

(a) Show that the number of atoms of gas in the container is 2.8×10^{23}.

[2]

(b) Atoms of a real gas each have a diameter of $1.2 \times 10^{-10}\,m$.

(i) Estimate the volume occupied by 2.8×10^{23} atoms of this gas.

volume = ... m^3 [2]

(ii) By reference to your answer in **(i)**, suggest whether the real gas does approximate to an ideal gas.

.....

.....

..... [2]