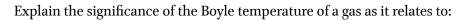
Quiz 1.2 – Real Gases

Name:
Question 1
Using Table 1C.3 (van der Waals coefficients) at the end of your textbook, find the following (From those listed in the table): $\frac{1}{2}$
Smallest gas particle
Largest gas particle
Gas with the strongest attractive forces
Gas with the weakest attractive forces
Question 2
Ammonia has van der Waals constants of $a=4.169\frac{L^2bar}{mol^2}$ and $b=0.0371\frac{L}{mol}$
$8.00\ mol$ of ammonia are placed in $2.75\ L$ at $348\ K$. Find the following:
o Pressure (bar) assuming ideal behavior
Pressure (bar) using the van der Waals equation
$\circ~$ Compression factor (Z) using this van der Waals pressure
$\circ~$ Reduced state variables, V_r , p_r , and T_r (You will need to refer to your textbook)

Question 3



- The virial equation –
- o The ideal gas law -

Question 4

Ammonia has second virial coefficient of $B=-165\frac{cm^3}{mol}$ at 348~K 8.00~mol of ammonia are placed in 2.75~L at 348~K

- o Find the pressure (bar) using the virial equation
- \circ Find the compression factor (Z) using this virial pressure
- o Compare the van der Waals pressure calculated above to this virial pressure
- \circ Explain how the results of the virial equation can rival those of the van der Waals equation, when it uses only one corrective term and the van der Waals equation uses two

The Waves

By Virginia Woolf

I see nothing.

We may sink and settle on the waves. The sea will drum in my ears.

The white petals will be darkened with sea water.

They will float for a moment and then sink.

Rolling over the waves will shoulder me under.

Everything falls in a tremendous shower, dissolving me.