R·I·T School of Mathematical Sciences

# 1 - Functions of Multiple Variables

MATH 211

The pressure $p$ (in Pa) of a gas as a function of its volume $V$ and temperature $T$ is $p = nRT/V$. If $n = 3$ mol and $R = 8$ J/mol·K, find $p$ for $T = 300$ K and $V = 50$ m$^3$.

Consider the ideal gas law presented in the previous problem. Find and physically interpret the limit of the pressure of the gas if $V \to 0^+$ cm$^3$ and temperature is fixed. Now, give an example in the engineering sciences where something like this may occur.