R·I·T School of Mathematical Sciences

3 - Total Differential

MATH 211

The pressure p (in Pa) of a gas as a function of its volume V and temperature T is $p = nRT/V$ where $n = 3$ mol and $R = 8$ J/mol·K. Find the actual and approximate changes in pressure if the volume is allowed to decrease from 2 cubic meters to 1.9 cubic meter and the temperature is allowed to increase from 300 Kelvin to 301 Kelvin. Then, find the error in your approximation.