

# CHEM2011 office hours notes

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# Test 1 notes

## Important things to know

- A function  $f(x, y)$  is a state function if and only if the following property is satisfied::

$$\left( \frac{\left( \frac{\partial f}{\partial x} \right)_y}{\partial y} \right)_x = \left( \frac{\left( \frac{\partial f}{\partial x} \right)_x}{\partial y} \right)_y$$

- For monoatomic gases,  $\bar{C}_V = \frac{3}{2}R$ ,  $\bar{C}_P = \frac{5}{2}R$ ,  $\gamma = \frac{\bar{C}_P}{\bar{C}_V} = \frac{5}{3}$
- For diatomic gases (assume no vib.),  $\bar{C}_V = \frac{5}{2}R$ ,  $\bar{C}_P = \frac{7}{2}R$ ,  $\gamma = \frac{\bar{C}_P}{\bar{C}_V} = \frac{7}{5}$