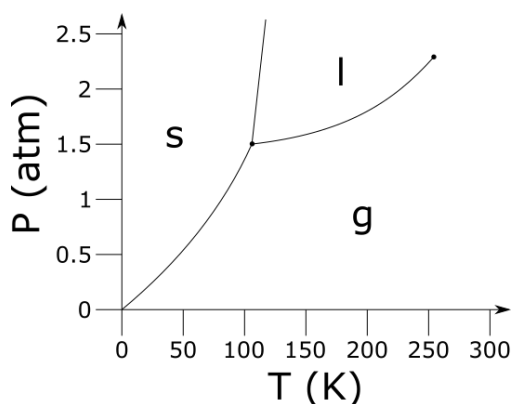


Quiz 4.1 – Chemical Potential and Phase Diagrams

Name: _____

Chemical Potential

Chemical potential, μ , is related to G in a way that is sometimes hard to disentangle. What exactly is the relationship between μ and G ?

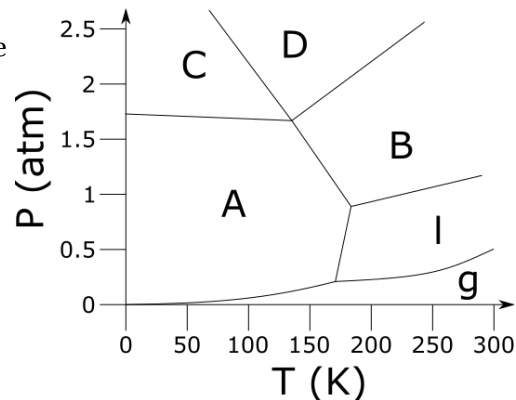
Phase Diagrams

Use the phase diagram at left to answer the following questions:

- What is the stable phase at 2.25 atm and 200 K?
- Give T and p for the triple point and the critical point
- Estimate the vapor pressure at 50 K and at 200 K

Use the phase diagram at right to answer the following questions:

- How many solid phases are represented?
- Highlight all parts of the diagram where there is only 1 free variable (i.e. variance = 1)
- Indicate a forbidden point on the diagram
- List the solid phases from least dense to most dense
- Which solid phase has the greatest molar entropy?
- A sample begins at 2.5 atm and 200 K. What phase changes would occur as the pressure is isothermally reduced to 0 atm?



游子吟 (*Song of a Traveling Son*)

By 孟郊 (Meng Jiao)

慈母手中线, 游子身上衣。
临行密密缝, 意恐迟迟归。
谁言寸草心, 报得三春晖。

Thread in the hands of a loving mother
Turns to clothes on the traveling son.
She adds stitch after tight stitch until he leaves
and worries about his return.
A grass blade is bathed in spring sun;
how can its inch-sized heart return such love?