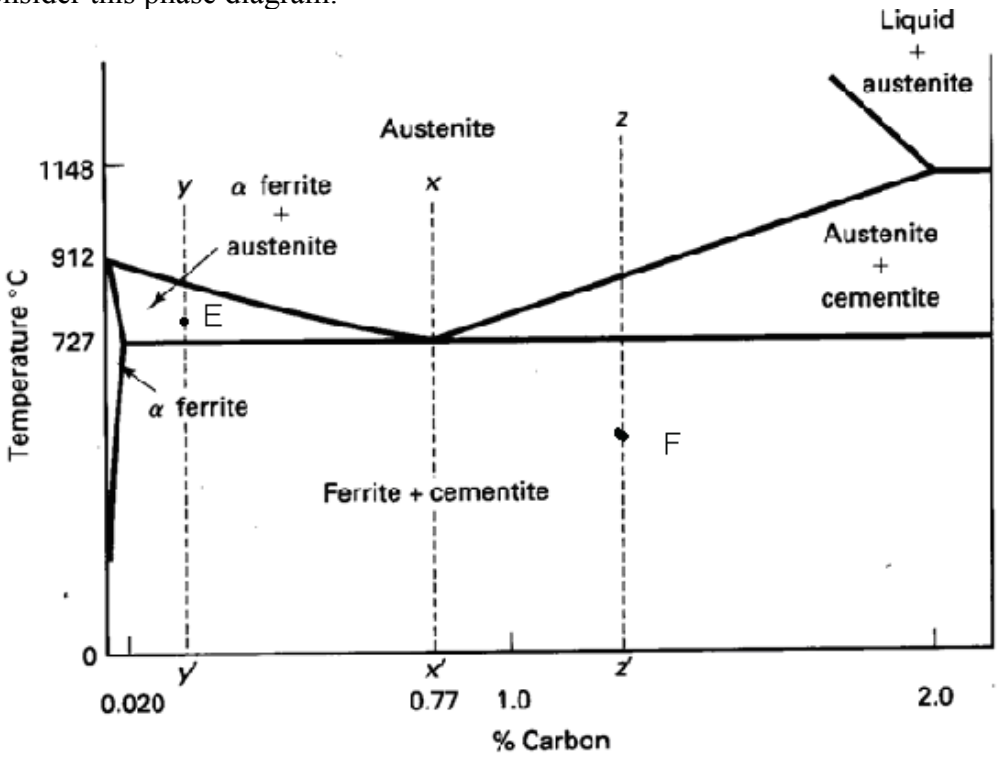
Phase diagram reading

Example 2

Consider this phase diagram:



Questions:

1. Write the species: …….
2. This phase diagram cross-section describes the (choice: unary binary ternary quaternary) …….. system.
3. Describe axis:
   Axis *x* is ……value given in ……..
   Axis y is …… value given in ……..
   The constant system variable(s) is (are)……..
4. How many phases can coexist in phase equilibrium in this system at maxima? …….
5. How many phases we can see on this phase diagram cross-section at maxima? …….
6. Write all regions (that we can find on this phase diagram cross-section)
   Single-phase regions: …….
   Two-phase regions: …….
   Three-phase regions: ……..
   Another regions: …….
7. What phases we can find in equilibrium state at conditions given by point
   T=500°C, 1wt%Carbon
   T=800°C, 1.5wt%Carbon

T=912°C, 2wt%Carbon

8. Estimate the carbon solubility in ferrite at eutectoid temperature.
   …….

9. Estimate the temperature, pressure, total composition of the system, and the compositions of the phases given by points E
   E…….….
   Calculate phase ratio of the equilibrated phases in the system given by point E.

9. Write some tie-line into phase diagram cross-section, each in different phase field.

10. Describe what happens with the system given by point F when you will heat up the system to 1200°C (suppose equilibrium at each temperature step).

11. Look the phase diagram cross-section and mark the eutectoid point.