

**Exercises (for your own review only):**

*There are 4 copies of phase diagrams given here. For each diagram, do the following:*

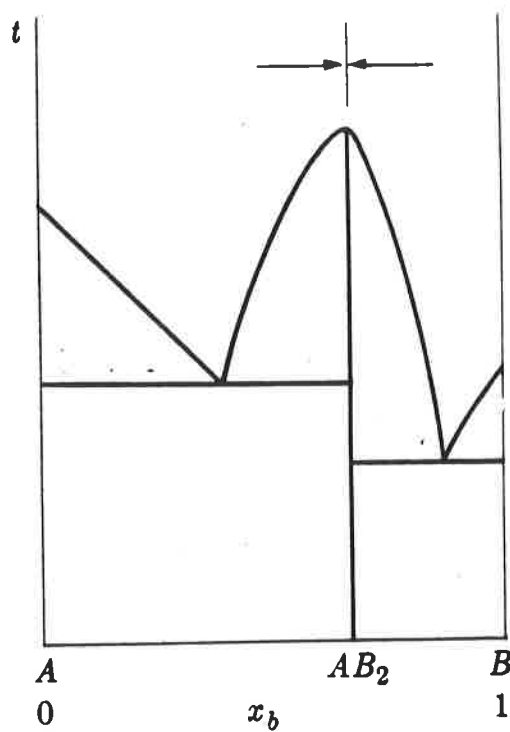
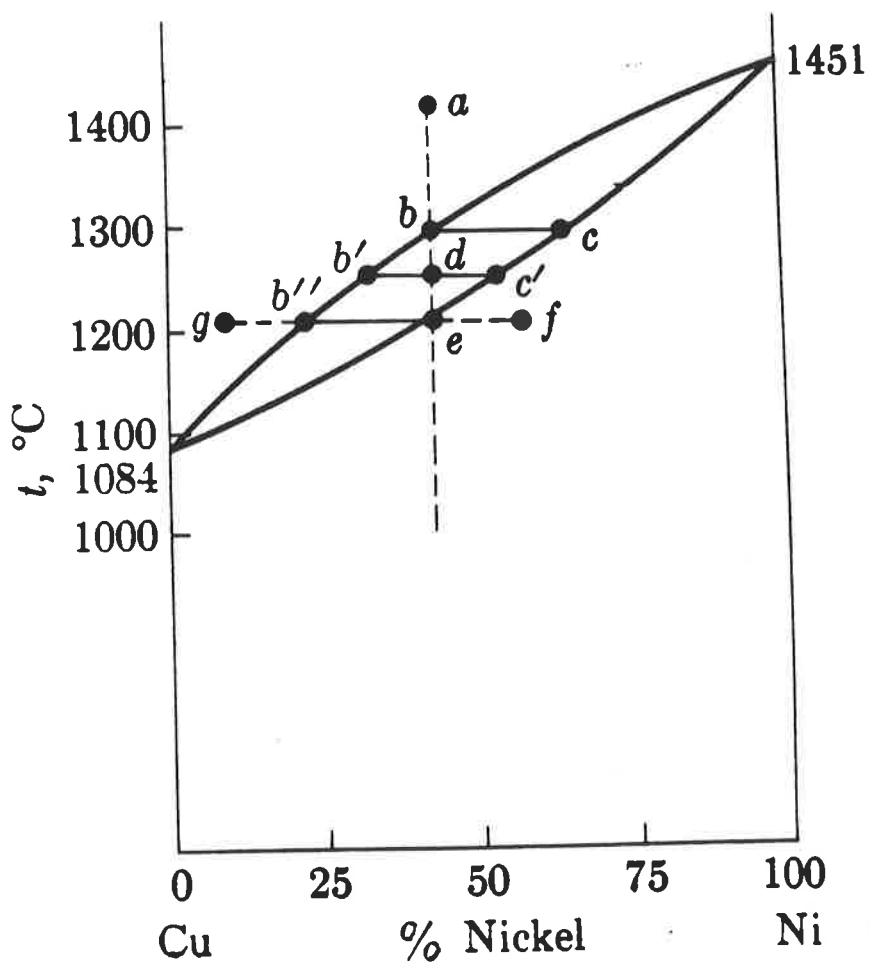
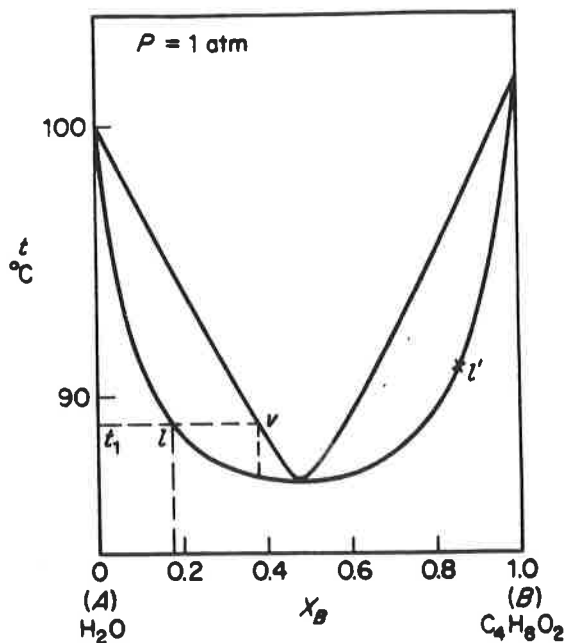
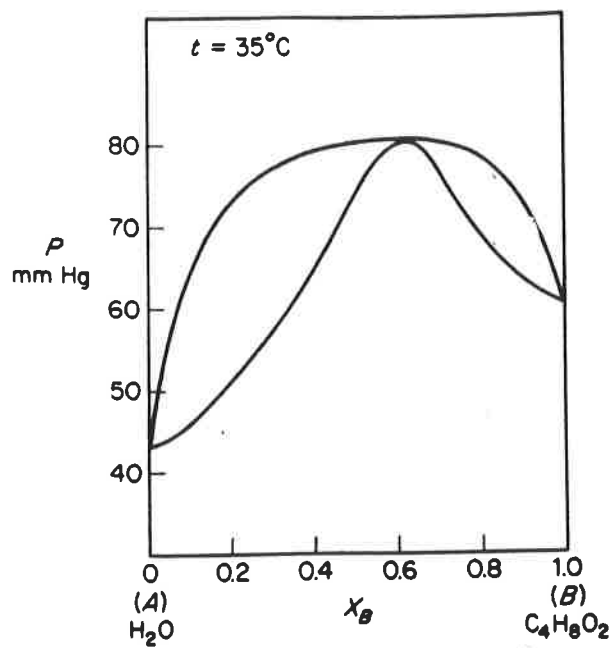
*copy 1: Label every area and every intersection point with a description of the phases that are in equilibrium with each other. [Example: A saturated solution of butanol in mostly water + vapor]*

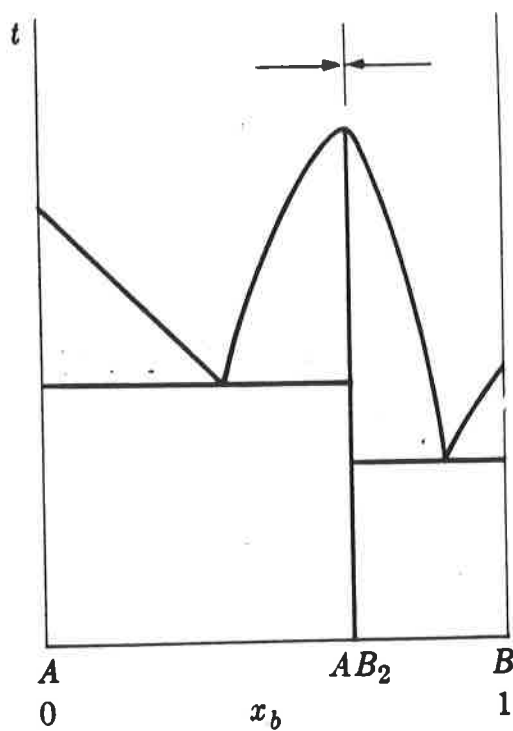
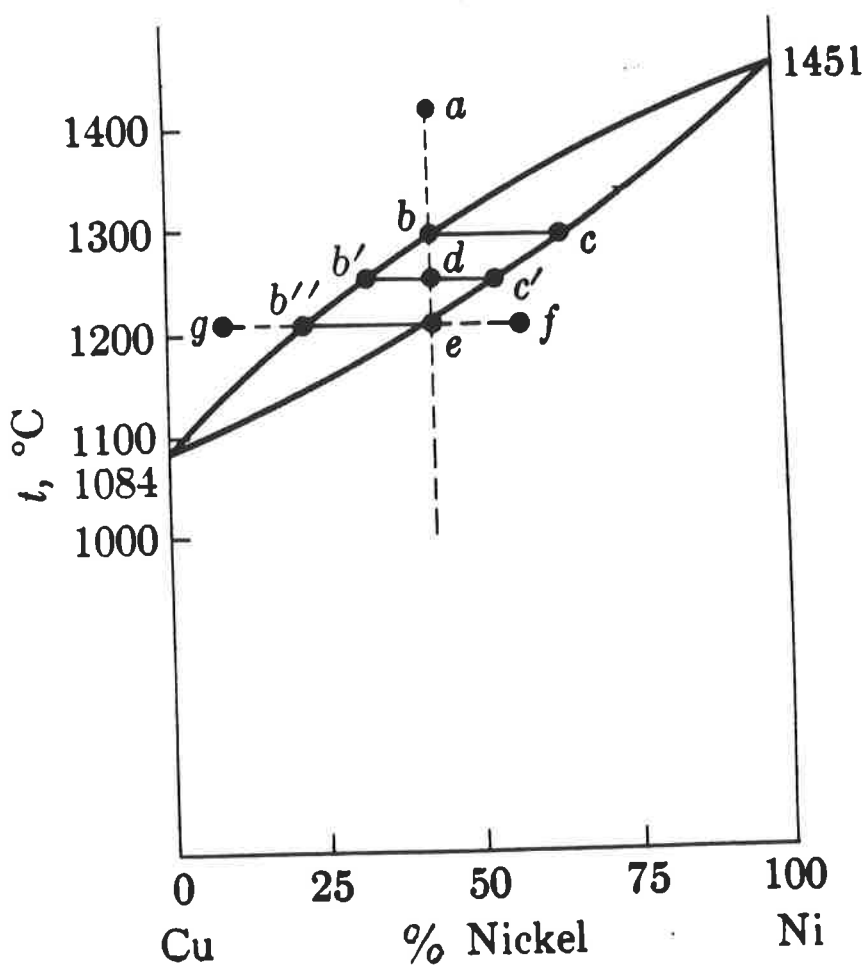
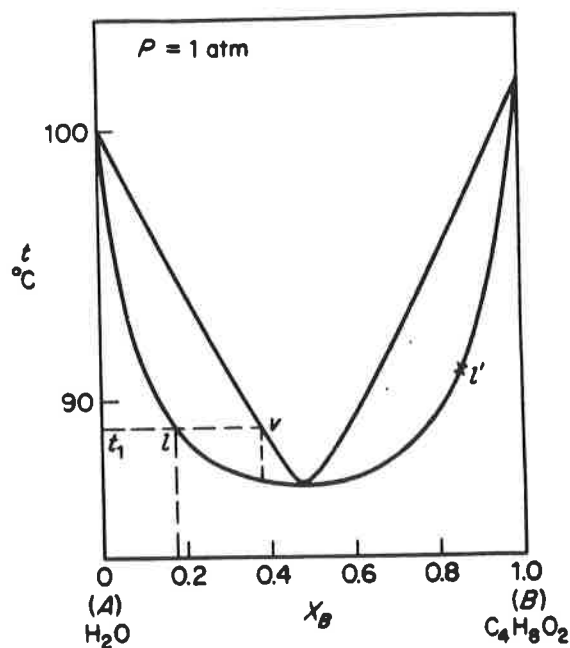
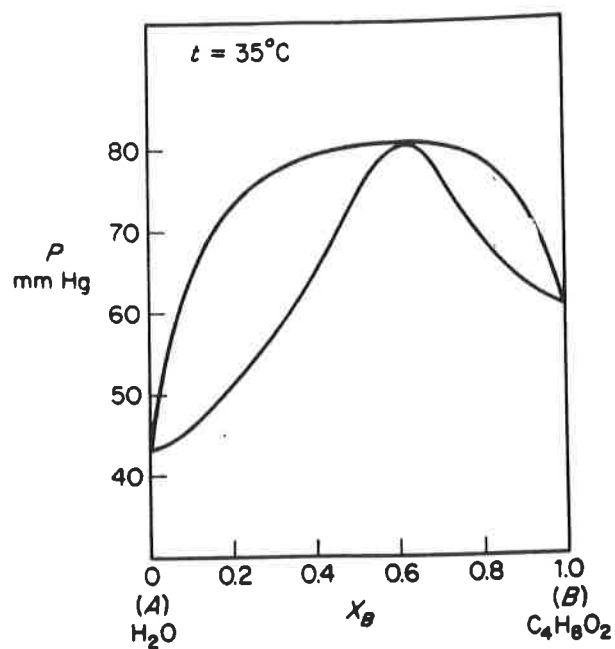
*copy 2: Label every area, every line (curved or straight) and every intersection point with the number of degrees of freedom.*

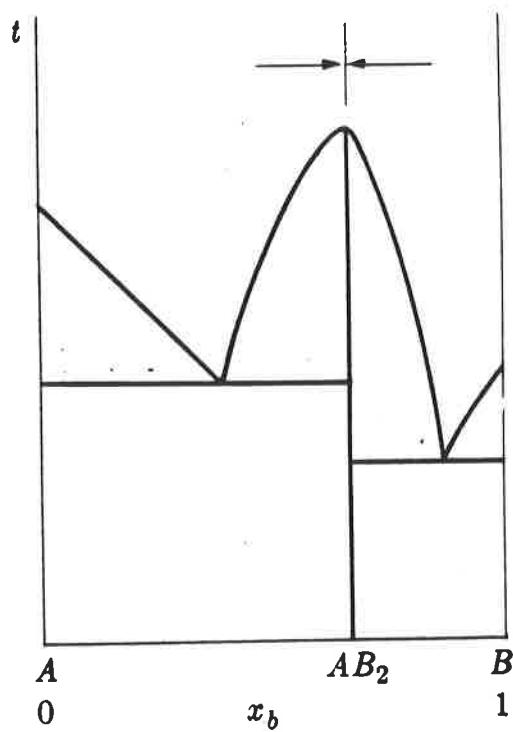
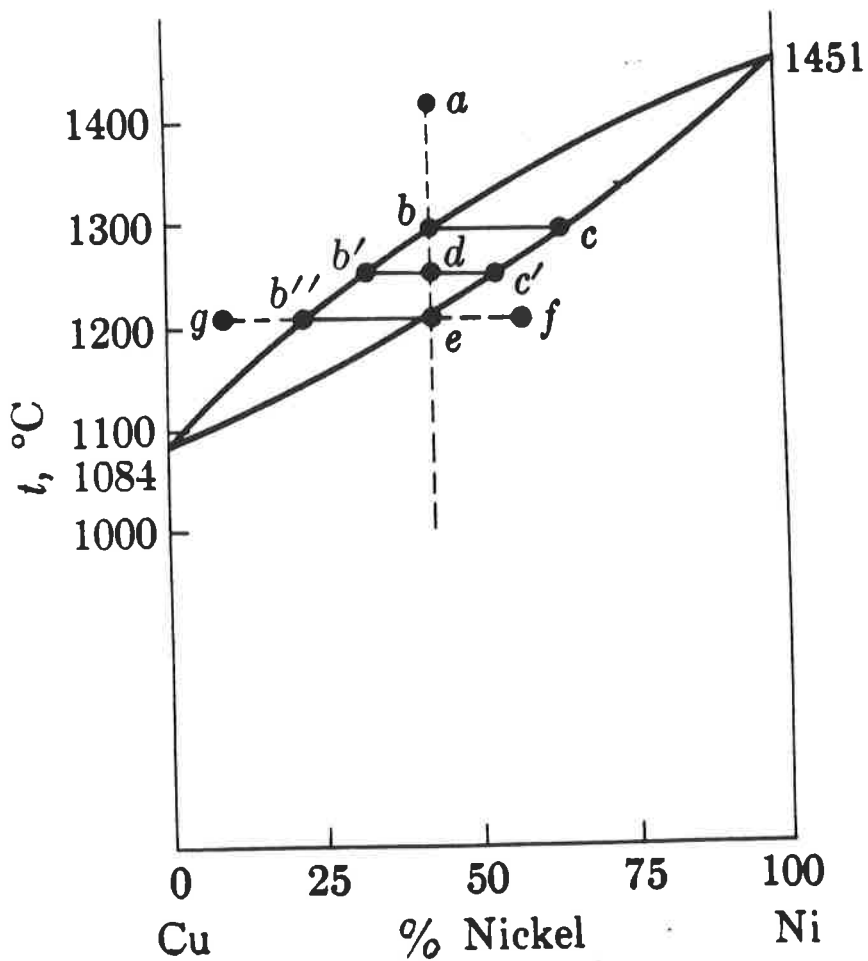
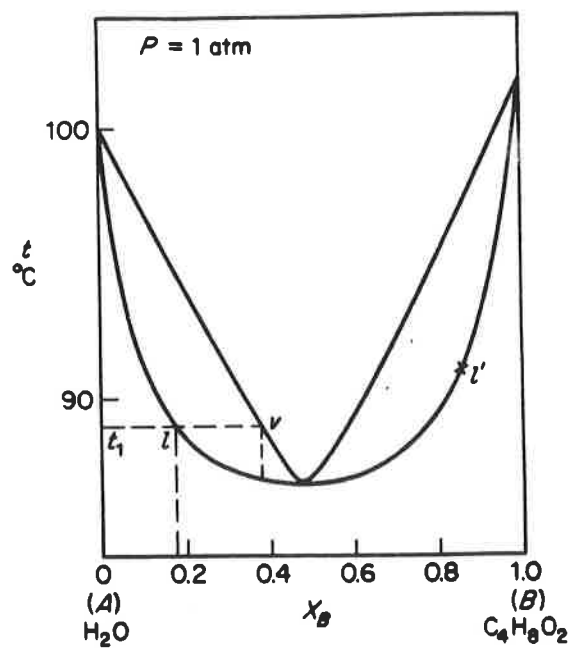
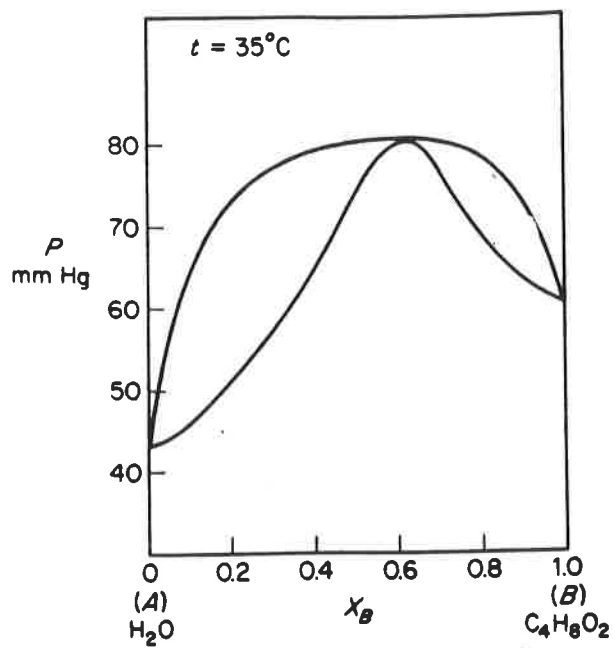
*copy 3: In each area draw a tie line, on this tie line choose a specific point. For this specific point describe completely the state of the system: [Specify the mole fractions overall, the mole fractions in each phase, the relative amounts of the two phases.]*

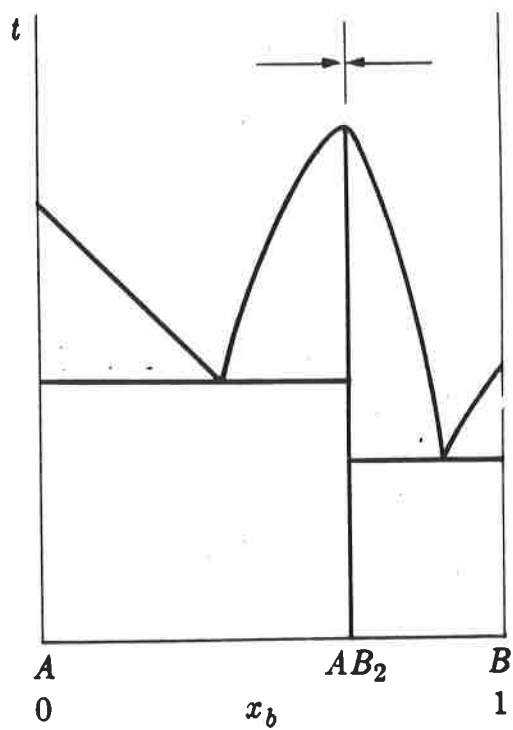
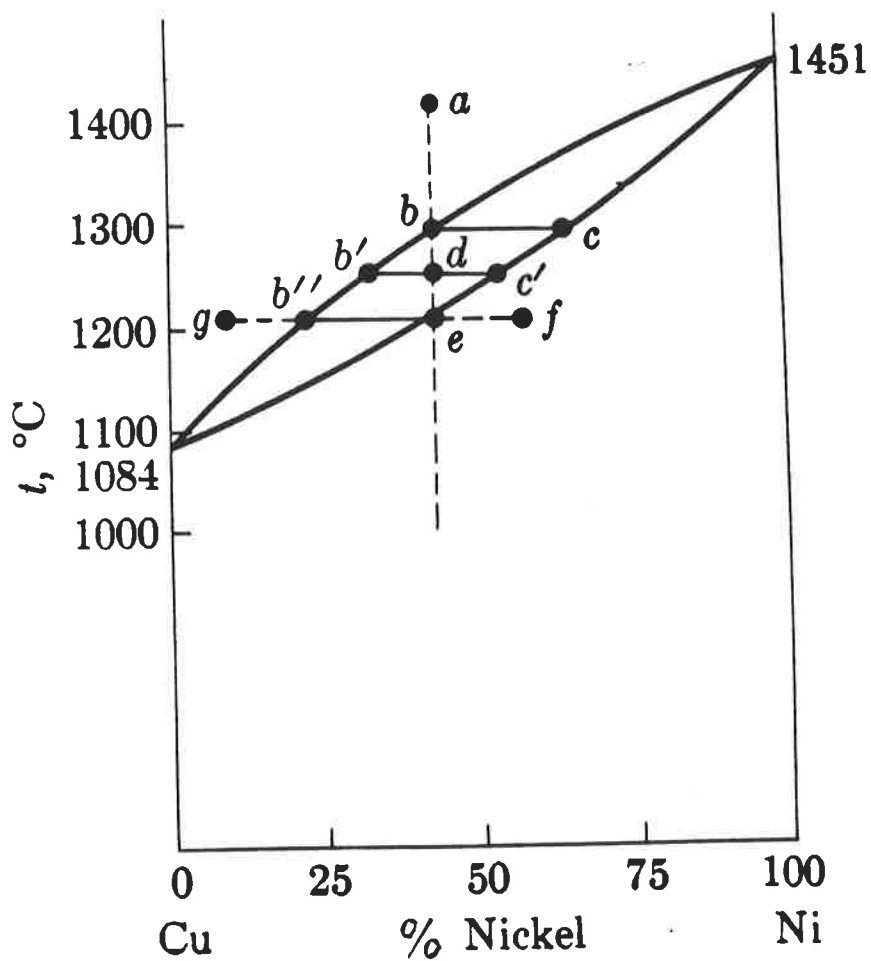
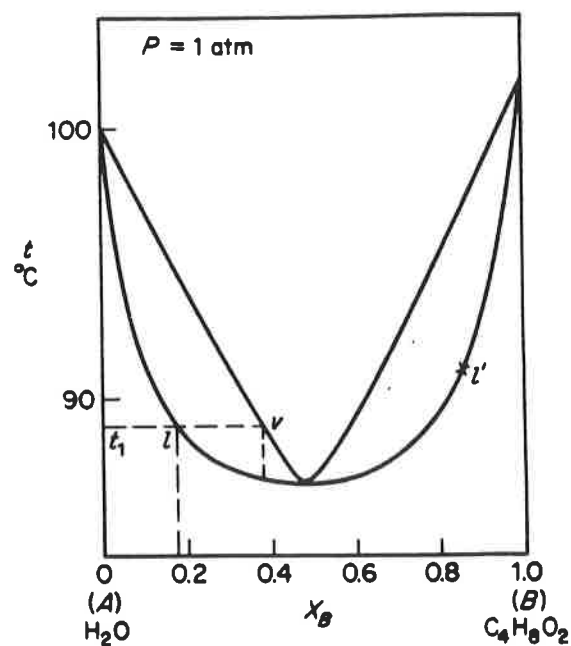
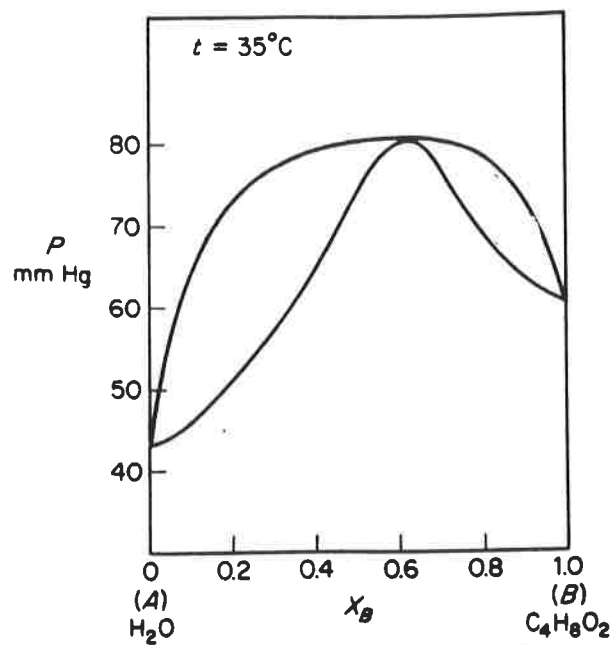
*copy 4: Draw a vertical line in the phase diagram. Write a complete description of the system as the p-changing or T-changing process proceeds along the vertical line, either going up or going down. For a T-changing process draw also the corresponding cooling curve.*

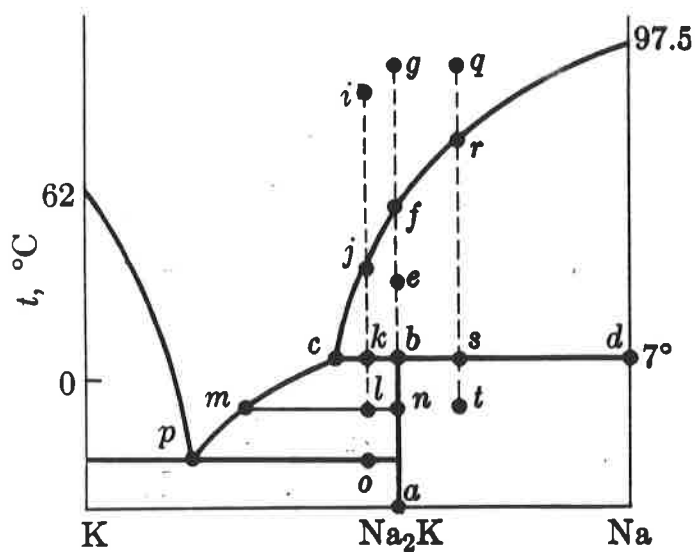
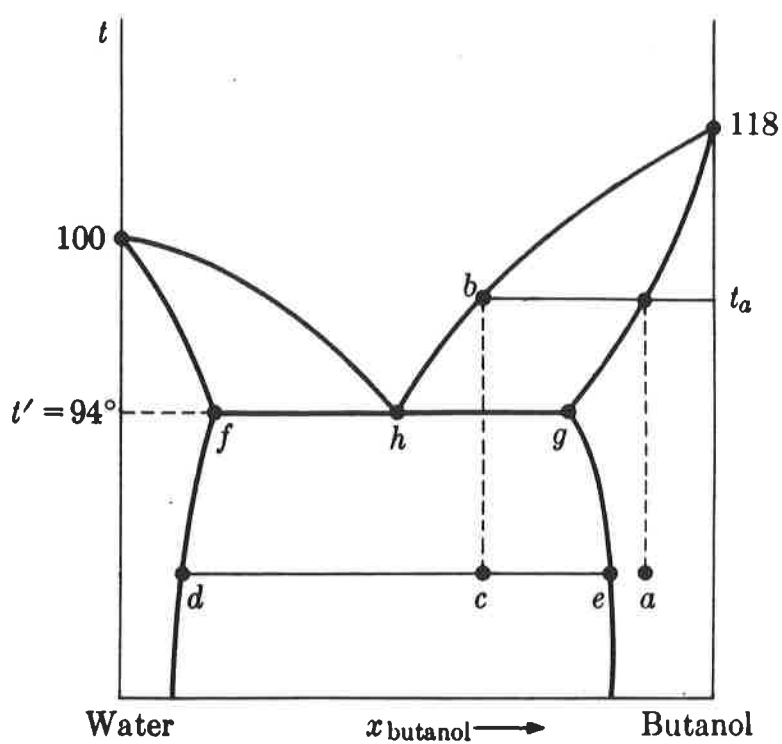
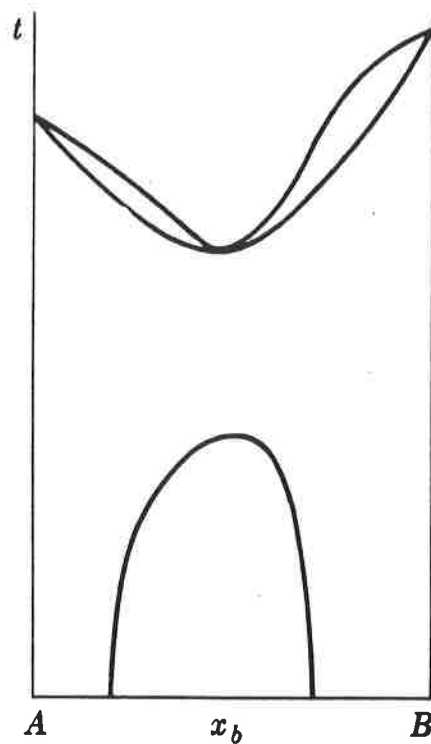
*For 3 and 4 you may, on occasion, choose lines or points already marked on the diagram if you wish to compare your answers with your classmates.*



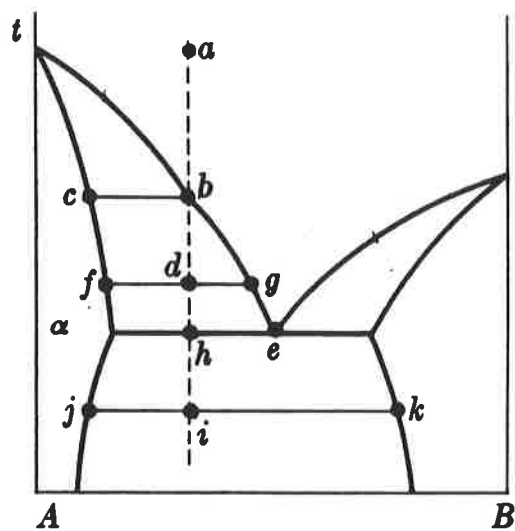




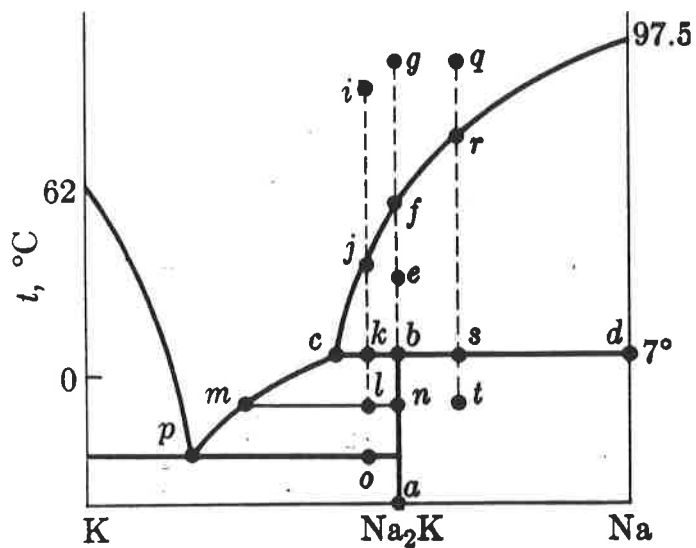
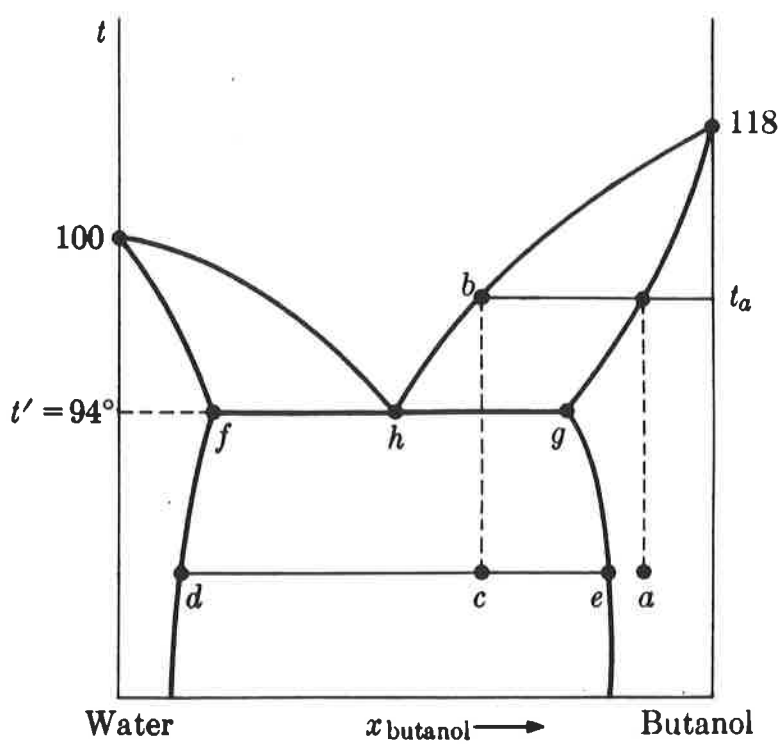
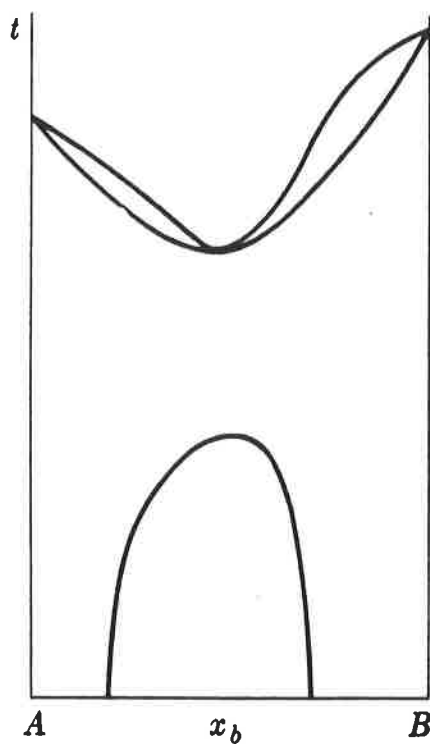




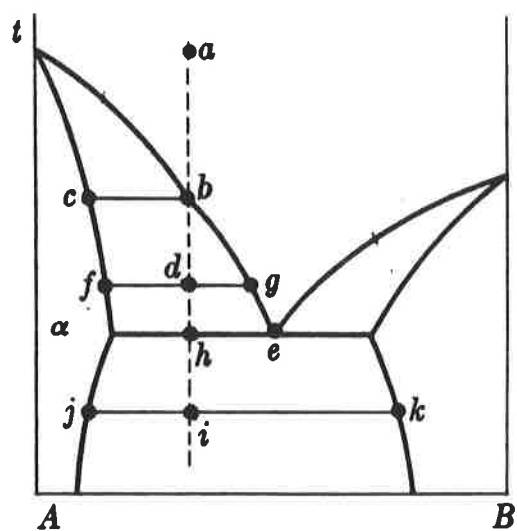
Compound with incongruent melting point.



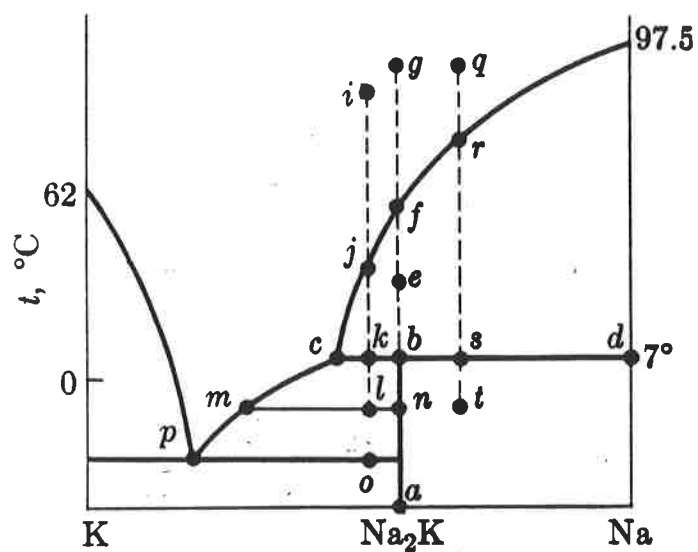
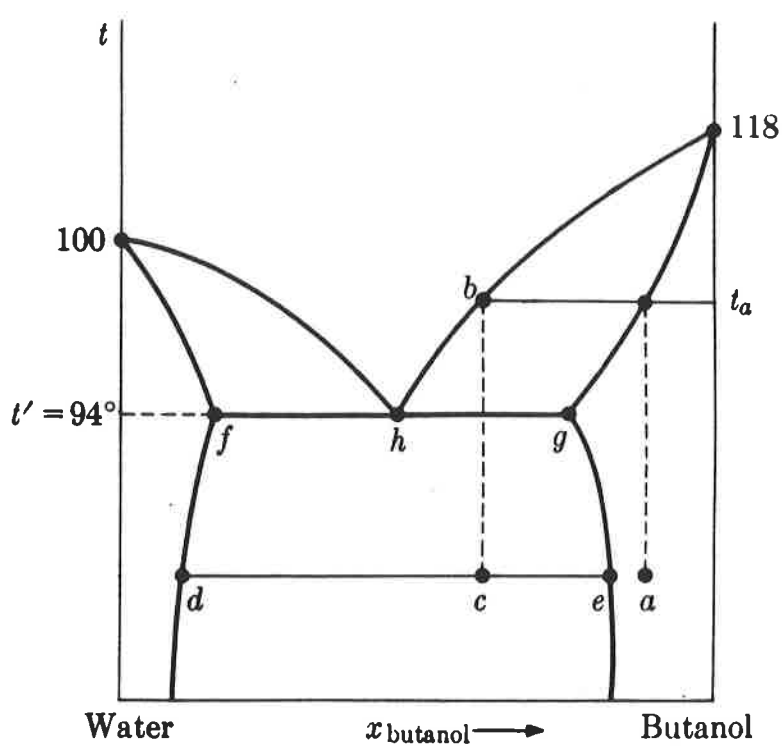
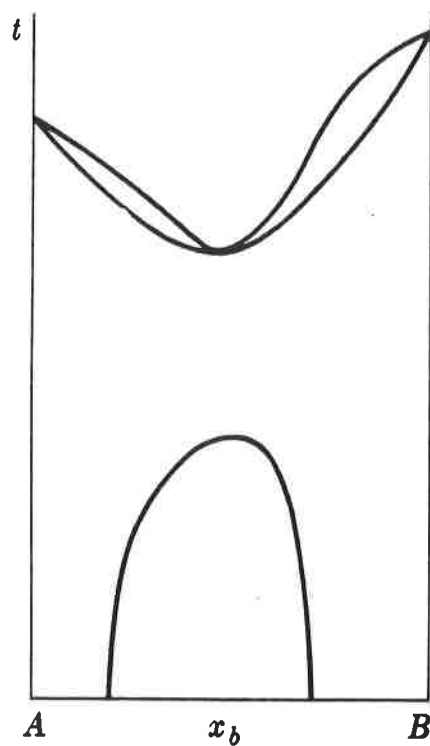
Partial miscibility in the solid state.



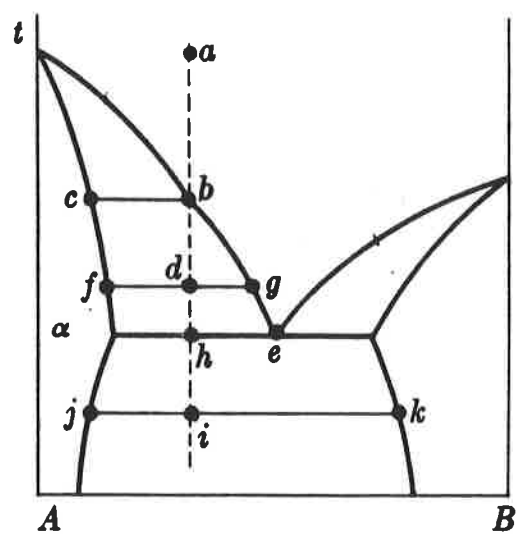
Compound with incongruent melting point.



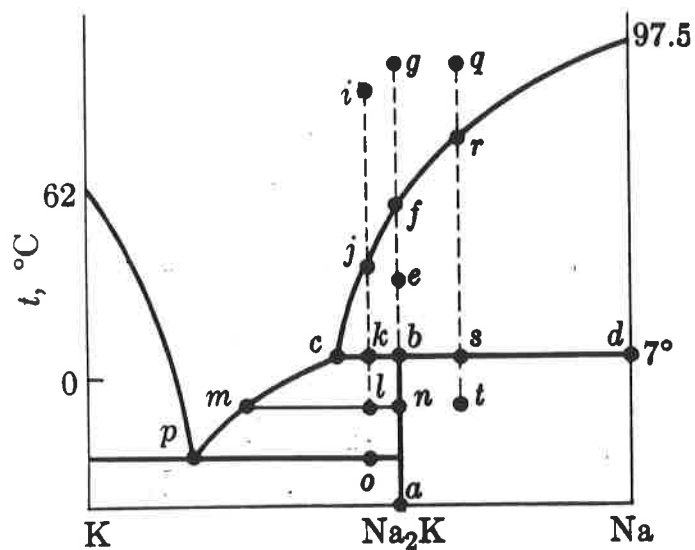
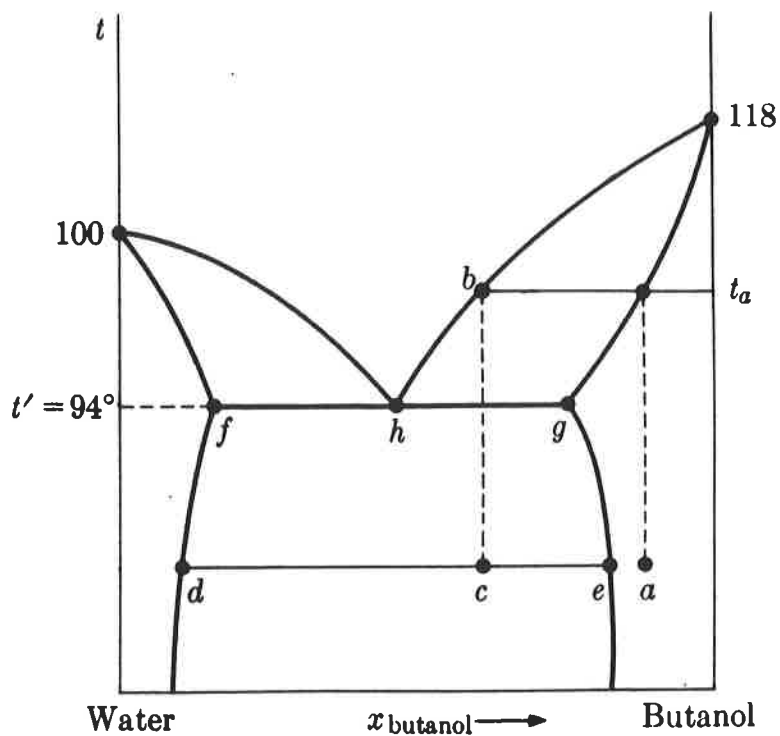
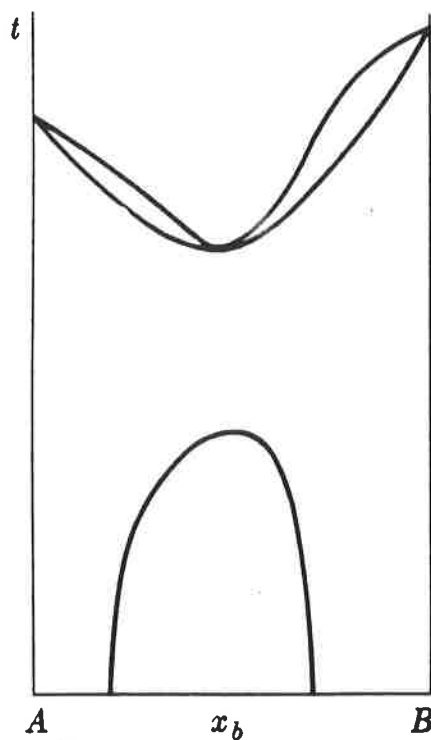
Partial miscibility in the solid state.



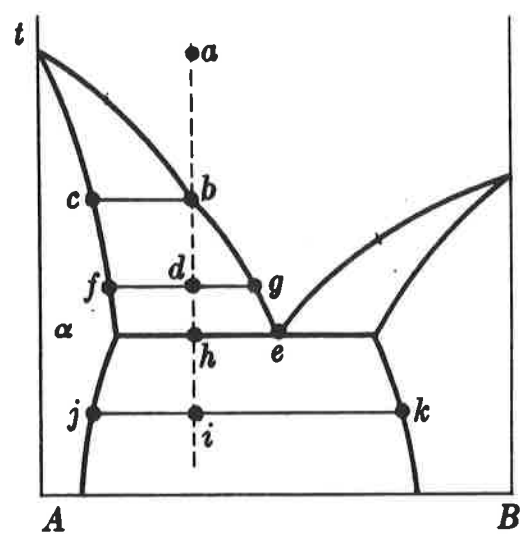
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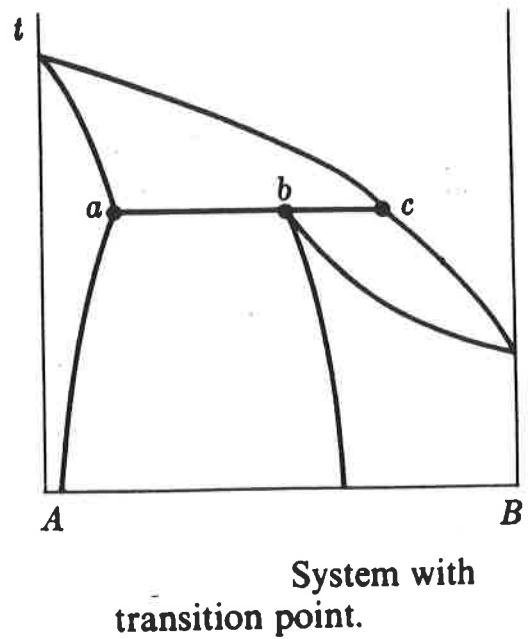
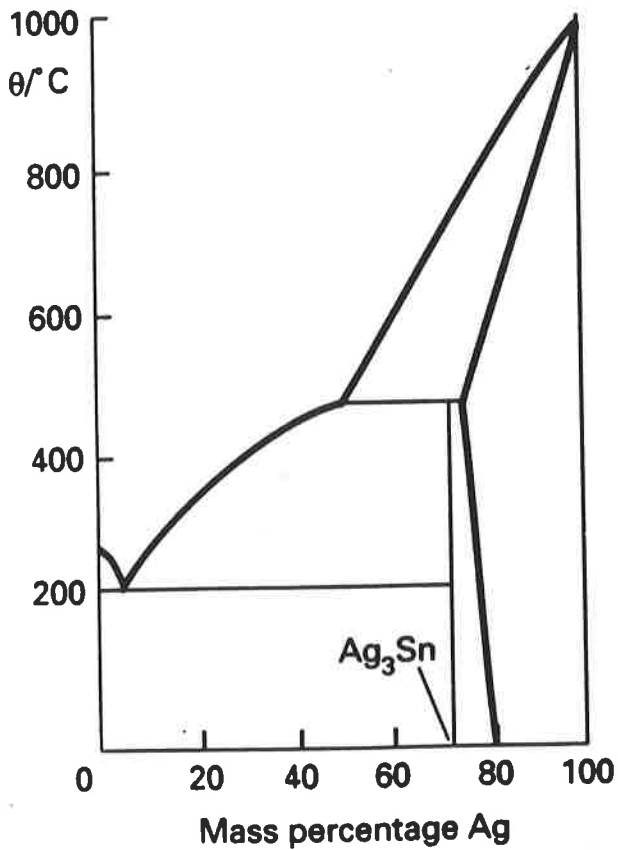
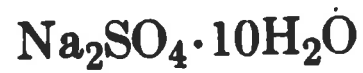
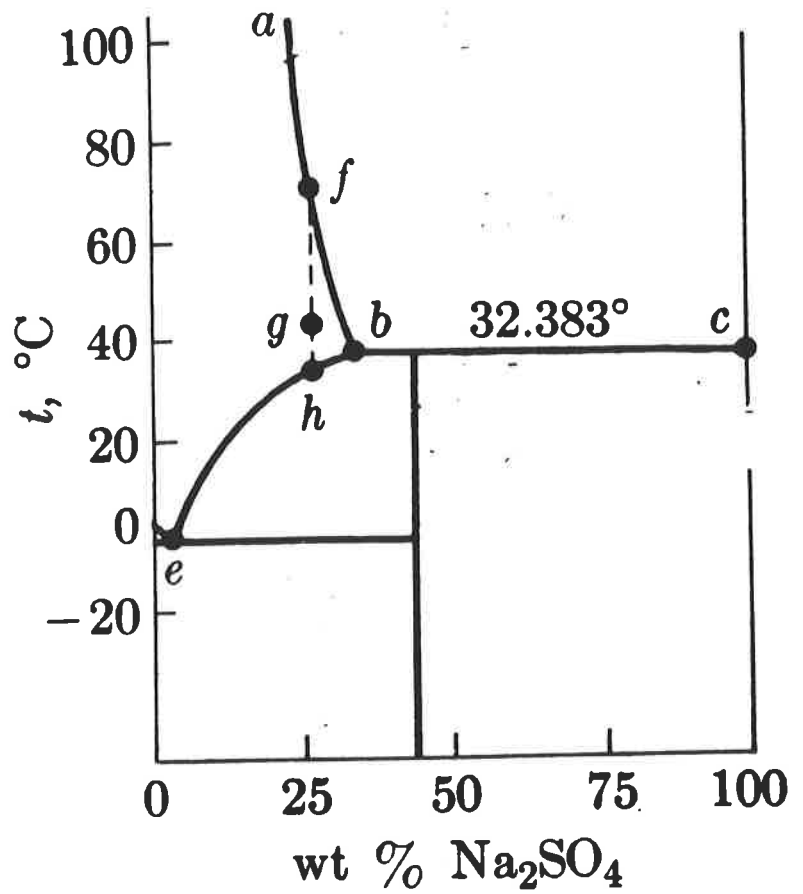
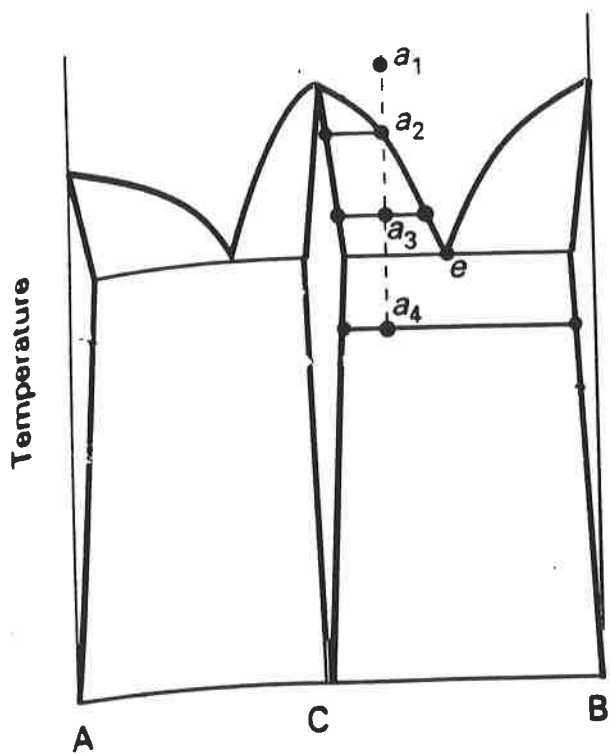
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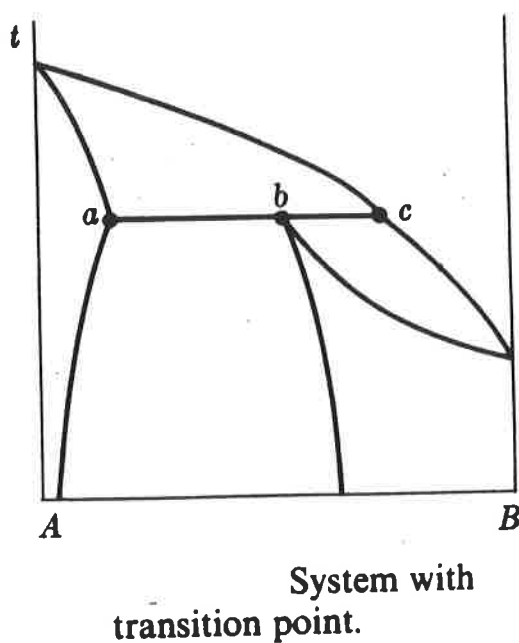
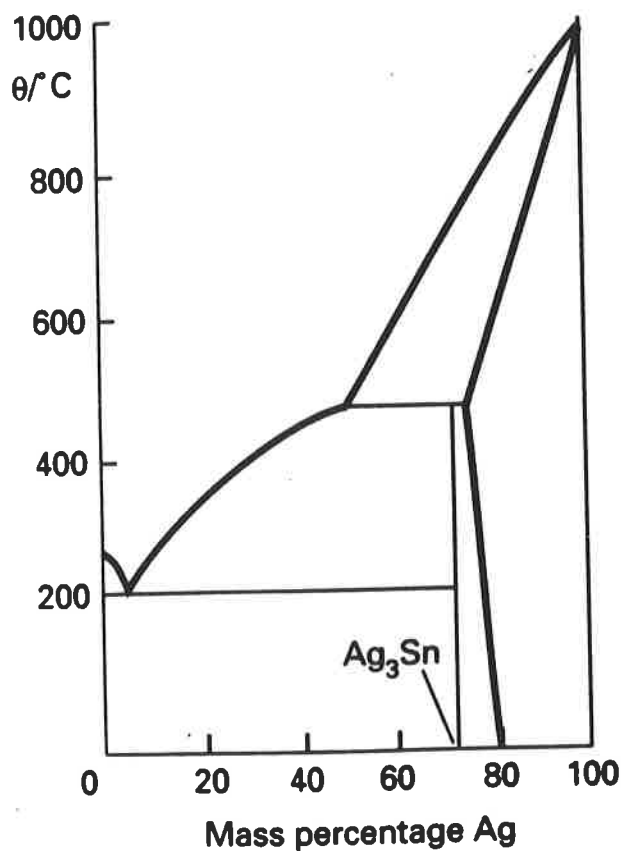
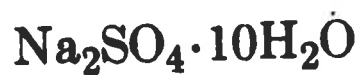
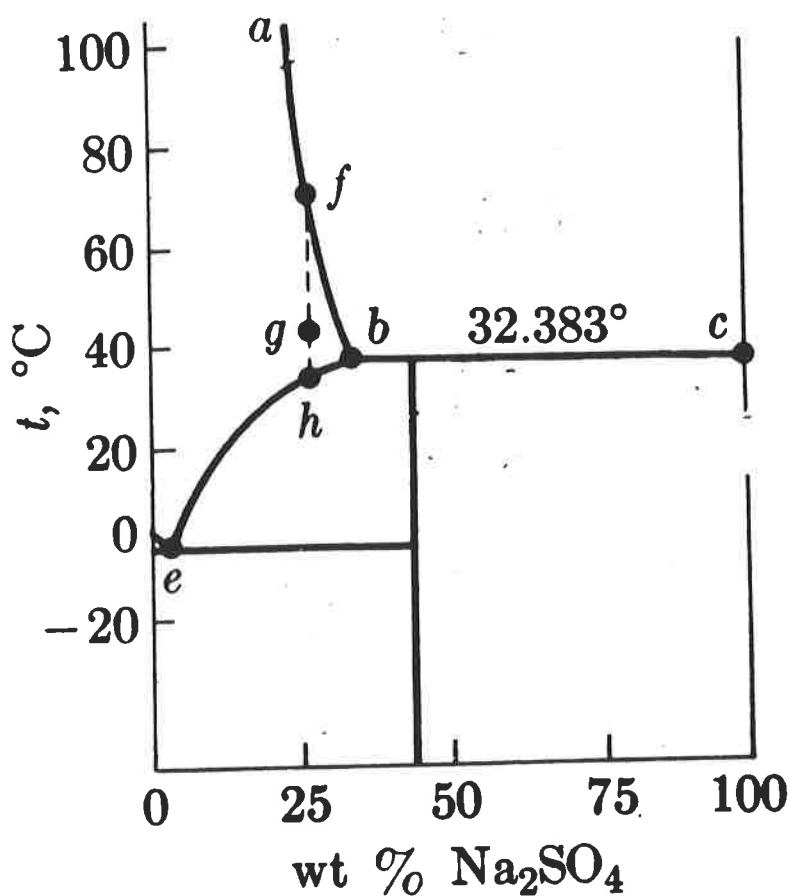
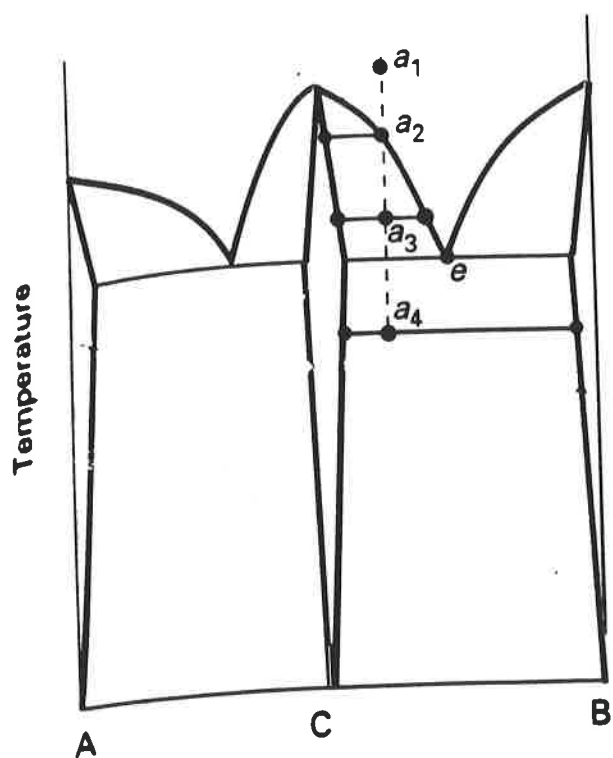


Compound with incongruent melting point.



Partial miscibility in the solid state.





Temperature

