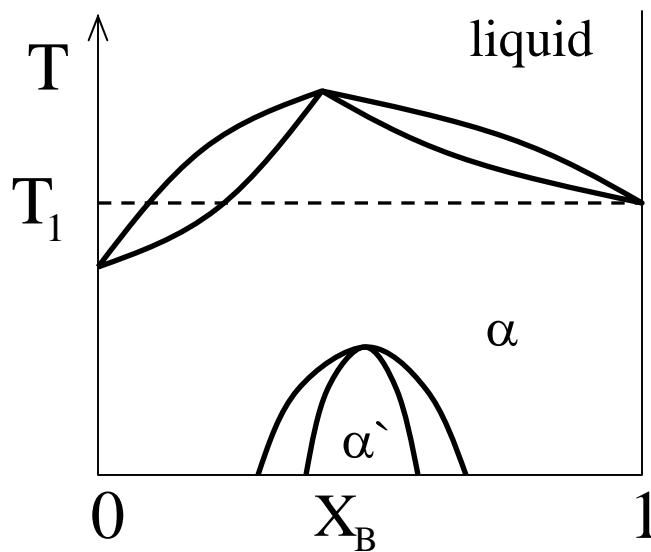


homework #5 (page 1 of 3)

1. For the phase diagram shown below, sketch the Gibbs free energy curves, $G(X_B)$, for all phases present at temperature T_1 .

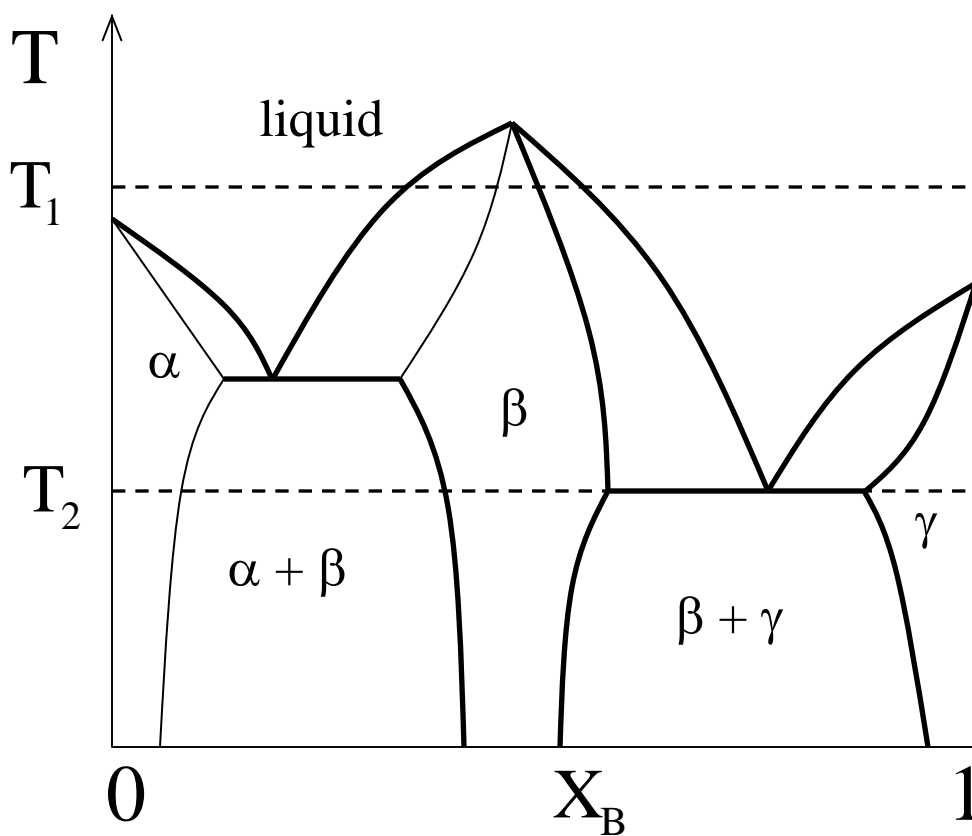
Based on the phase diagram what can you say about the bond energies between atoms? Compare the energy of the A-B bond with energies of A-A and B-B bonds.



homework #5 (page 2 of 3)

2. For phase diagram shown below, sketch the Gibbs free energy as a function of composition for temperatures T_1 and T_2 .

Indicate solidus, liquidus, and solvus lines, eutectic isotherms, eutectic points, intermediate phase.



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3. Label the phases in the Al-Zn phase diagram shown below.

For points A and B marked in the phase diagram determine compositions of the phases present and the relative fractions of the phases.

For an alloy with composition 90 wt.% Zn at temperature of 150 °C draw schematically the microstructure (the alloy is formed by a slow cooling from the melt). List and label on the drawing all the phases and microconstituents.

