Problem A: Prove that if a knowledge base entails contradictory formulas, then it entails any formula. That is, use the definition of entailment to prove the following statement.

Let $KB$ be a formula of some logic. If there exists a formula $\phi$ such that both $KB \models \phi$ and $KB \models \neg \phi$, then $KB \models \phi$ for any formula $\phi$.

Problem B: Prove that if $KB \models \phi$, then the formula $KB \rightarrow \phi$ is logically valid (i.e. a tautology).

Also complete the following problems from your textbook.

- 8.2
- 8.3
- 8.4
- 8.6 h,i,j,k
- 8.13 (explain in terms of the models allowed)
- 8.15 (explain in terms of the models allowed)