1. 7.46 (7.44 in second edition, about MIN-FORMULA)

2. Read the definition of MIN-FORMULA from Problem 1.
   (a) Show that \( \text{MIN-FORMULA} \in \text{PSPACE} \).
   (b) Explain why this argument fails to show that \( \text{MIN-FORMULA} \in \text{coNP} \): If \( \phi \notin \text{MIN-FORMULA} \), then \( \phi \) has a smaller equivalent formula. A NTM can verify that \( \phi \in \text{MIN-FORMULA} \) by guessing that formula.

3. 8.10 (8.10 in second edition, about go-moku)

4. Show that if every NP-hard language is also PSPACE-hard, then PSPACE = NP.