CS277 – Relational Database Systems
Homework 1 (Due on Oct 6 2003)

Instructions: Answer all questions <u>concisely</u>.

1. Prove or disprove the following:
   - $\pi_A(R \cup S) = \pi_A(R) \cup \pi_A(S)$

   Assume that A is an attribute in the schema of R and the schemas of R and S are identical.

2. Consider the difference operator, **"-"**, whose meaning is given as follows: Given any two relations, D and D', with the same schema, D – D' is the set of all tuples in D but not in D'. That is,

   $D - D' = \{ t \in D \mid t \notin D' \}$

   Show that the difference operator cannot be simulated with SPCU algebra. (*Hint*: use the monotonicity property of SPCU algebra.)