Discrete Structures CS21001 Tutorial 1

Answer following questions

a) For any set A and B prove that $(A \cup B)' = A' \cap B'$

b) Let $R1$ and $R2$ be two transitive relations on a set S . What can you can say about $R1 \cup R2$

c) Give an example that shows that union of two antisymmetric relations on some set S need not be antisymmetric.

d) Consider a relation R (congruence modulo n) on a set of integers. Explain whether it is reflexive, symmetric, antisymmetric ,transitive . a and b are congruent is denoted by $a \equiv$ (b mod n) if $(a - b) \mid n$

e) Prove that $(A \cup B) - (C \cup A) = A \cup (B - C)$

f) Let A be a set of all points in space . Let R be a relation such that , $\mid a1 - a2 \mid < 1$. Explain the properties of the relation R