

# homework 4

cs201.1

due 24 february 1999

## real problems

1. Theorem:  $(X - Y) \cup (Y - X) = (X \cup Y) - (X \cap Y)$ . Draw a Venn diagram to convince yourself the theorem is true, and then prove the theorem, using the following definitions:

$A = B$  if and only if  $A \subseteq B$  and  $B \subseteq A$ .

$A \subseteq B$  if and only if  $\forall x(x \in A \rightarrow x \in B)$ .

$A \cap B = \{x | x \in A \wedge x \in B\}$

$A \cup B = \{x | x \in A \vee x \in B\}$

$A - B = \{x | x \in A \wedge x \notin B\}$