

# Homework 9 - Inference

\* If there is any problem, please contact TA.

Name:----- Student ID:----- Email: -----

**Problem 1.** (60 pts) Write down the principal solutions for the following sets of constraints:

- (a)  $\{X = Int, Y = X \rightarrow X\}$
- (b)  $\{Int \rightarrow Int = X \rightarrow Z\}$
- (c)  $\{X \rightarrow Y = Y \rightarrow Z, Z = U \rightarrow W\}$
- (d)  $\{Int = Int \rightarrow X\}$
- (e)  $\{X = Int \rightarrow X\}$
- (f)  $\{\}$

**Problem 2.** (40 pts)

**Lemma 1.** *If a set of constraints  $q$  has a solution, then it has a most general one.*

Prove this lemma.