4130 HOMEWORK 1

Due Thursday February 4

(1) Section 1.1.3 Exercise 2b.

(2) Section 1.1.3 Exercise 3b.

(3) Let A be a set and let $P(a)$ be a statement about an element of a. We write

$$\exists! a \in A \, P(a)$$

   for "there exists a unique $a \in A$ such that $P(a)$".
   (a) Write the statement $\exists! a \in A \, P(a)$ in a form which uses the quantifiers $\forall$ and $\exists$, and no connectives apart from $\wedge$, $\vee$ and $\neg$.
   (b) Write the negation of the statement from part (a).

(4) Section 1.2.3 Exercise 2.

(5) Section 1.2.3 Exercise 4.

(6) Section 1.2.3 Exercise 7.