

## Homework #2

Last Name: \_\_\_\_\_

Name : \_\_\_\_\_

PSID: \_\_\_\_\_

**TRANSITION TO ADVANCED MATHEMATICS  
HOMEWORK#2 – DUE THURSDAY, 02/08**

*Problem 1.* Exercise 1.2 Problem 12 (b),(c),(f).

*Problem 2.* Exercise 1.3 Problem 1 (a),(c),(e),(l).

*Problem 3.* Exercise 1.3 Problem 7 (a).

*Problem 4.* Exercise 1.3 Problem 8 (c),(g),(h),(i),(j),(k).

*Problem 5.* Exercise 1.3 Problem 9.

*Problem 6.* Which of the following are true?

The universe for each statement is given in parentheses.

- a)  $(\forall x)(x + x \geq x).(\mathbb{R})$
- b)  $(\forall x)(\forall y)[x < y \Rightarrow (\exists w)(x < w < y)].(\mathbb{N})$
- c)  $(\forall x)(\forall y)[x < y \Rightarrow (\exists w)(x < w < y)].(\mathbb{Q})$
- d)  $(\exists!x)(x^2 + x = 6).(\mathbb{R})$
- e)  $(\forall x)(\exists y)(x + y = 5).(\mathbb{R})$
- f)  $(\exists x)(\forall y)(x + y = 5).(\mathbb{R})$
- g)  $(\exists x)(\forall y)(x + y = x).(\mathbb{R})$
- e)  $(\forall x)(\exists y)(\forall z)(x < yz).(\mathbb{N})$