Homework3

(All questions carry 10 marks each)

Exercise Set 3.1, #12, page 106

x=16, y=4

√x= 4; √y=2 ; √x+√y = 6

√(x+y) = √20 =4.47

Exercise Set 3.1, #16bdf, page 107

b). ∀ real number x, x is positive, negative or zero.

d). ∀ logician x, x is not lazy.

f). ∀ real number x, square of x is not equal to -1.

Exercise Set 3.1, #32bd, page 108

b). True. Any number greater than 2 will have a square greater than 4.

d). True. $x^2>4$ -> x>2 or x<-2 but |x|>2.

Exercise Set 3.2, #2, page 116

c). Some dogs are disloyal.

f). There is a dog that is disloyal

Exercise Set 3.2, #17, page 116

∃ an integer d such that 6/d is an integer and d ≠3.

Exercise Set 3.2, #44, page 117

It is not the case that if a person is happy then the person is having a large income. In other words there is a person who is happy and does not have a large income.

Exercise Set 3.3, #10, page 129

a). There is at least one desert chosen by every student. True.

b). There is a salad chosen by every student. False-> Yuen did not choose a salad.

c). There exists a particular desert such that all students chose that desert. True.

d). There exists a particular beverage such that all students chose that beverage. False.

e). There is a particular item such that none of the students chose that item. False.

f). There is a station such that chose atleast one item from that station. True->Beverage

Exercise Set 3.3, #41cdfgh, page 130

c). True: When you add 1 to any real number we again get a real number.

d). True: Number multiplied by its reciprocal is 1.

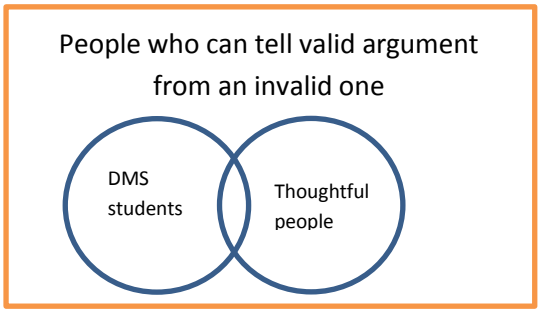
f). False: Consider x=1 and y=3 . Hence, z= -2 (which is not in Z+).

g). True: Consider x=1 and y=3 . Hence, z= -2 (which is in Z).

h). True: let u=1/2, v=8, uv = 4<v

Exercise Set 3.4, #22, page 143

The argument is invalid



Exercise Set 3.4, #26, page 143

The argument is valid