P53-56

7：

a): All comedians are funny.

b): All people are comedians and are funny.

c): There is a person, if he is a comedian, then he is funny.

d): Some comedians are funny.

25：

a): P(x): “x is perfect.”

¬ ∃ x P(x)

b): P(x):”x is perfect.”

¬ ∀ x P(x)

c): P(x):”x is perfect.” Q(x):”x is your friend.”

∀ x (Q(x)→P(x))

d): P(x):”x is perfect.” Q(x):”x is your friend.”

∃ x (Q(x)∧P(x))

e): P(x):”x is perfect.” Q(x):”x is your friend.”

∀ x (Q(x)∧P(x))

f): P(x):”x is perfect.” Q(x):”x is your friend.”

¬ ∀ x (Q(x)∨¬ P(x))

35：

a): Can’t find.

b): x = 0

c): x = 2

P64-68

9：

a): ∀ x L(x, Jerry)

b): ∀ x∃ y L(x, y)

c): ∃ y∀ x L(x, y)

d): ¬ ∀ x∀ y L(x, y)

e): ∃ y ¬L(Lydia, y)

f): ∃ y ¬∃ x L(x, y)

g): ∃ y(∀ x L(x, y) ∧∀ z( (∀u L(u, z))→y = z))

h): ∃ x∃ y(x = y ∧ L(Lynn, x)∧L(Lynn, y)∧ ∀z(L(Lynn, z)→ (z = x ∨ z=y)))

i): ∀ x L(x, x)

j): ∃ x(L(x, x) ∧¬∃y L(x, y))

37：

a):There is someone in this class that for every two different mathematics classes, these are not the two and only two mathematics classes the person has taken.

b):Every person has either visited Libya or has not visited a country other than Libya.

c): There is someone who has climbed every mountain in the Himalayas.

d):There is someone who has neither been in a movie with Kevin Bacon nor has been in a movie with someone who has been in a movie with Kevin Bacon.

P:78-80

11: If q is false, we can prove that r is true.

If q is true, because p1,p2……pn are true, r is true.

In conclusion, r is true.

15:

a): correct.

b): incorrect.

c): incorrect.

d): correct.

29:

1.∃x¬P(x) Premise

2.¬P(c) EI from(1)

3.∀x(P(x)∨Q(x)) Premise

4. P(c)∨Q(c) UI from (3)

5. Q(c) Disjunctive syllogism from (4) and (2)

6.∀x(¬Q(x)∨S(x)) Premise

7.¬Q(c)∨S(c) UI from (6)

8. S(c) Disjunctive syllogism from (5) and (7)

9.∀x(R(x)→¬S(x)) Premise

10. R(c)→¬S(c) UI from (9)

11.¬R(c) Modus tollens from (8) and (10)

12.∃x¬R(x) EG from (11)

P91-92

17:

a): If n is odd, n = 2k+1. Then n^3+5 = 8k^3+12k^2+6k+6.

So n^3+5 is even.

b): If n^3+5 is odd and n is odd. So n^2 and n^3 are odds. So n^3+5 is even. So n and n^3+5 can not both be odds.

25: 不会。。。