a.

	q	р	(((p -> q) -> p) -> p)	
	0	0	true	
•	0	1	true	
	1	0	true	
	1	1	true	

	р	q	((p /\ q) -> (p ∨ q))	
0 0 true		true		
•	0	1	true	
	1	0	true	
	1	1	true	

p q ((p -> q)		q	((p -> q) √ (p -> (~q)))	
	0	0	true	
•	0	1	true	
	1	0	true	
	1	1	true	

	р	q	r	$(((p \lor q) -> r) -> ((p -> r) \lor (q -> r)))$	
	0	0	0	true	
	0	0	1	true	
	0	1	0	true	
•	0	1	1	true	
	1	0	0	true	
	1	0	1	true	
	1	1	0	true	
	1	1	1	true	

1.

- $\forall x (P(x) \rightarrow A(m,x))$
- $\exists x (P(x) \land A(x,m))$
- A(m,m)
- $eg\exists x (S(x) \land \forall y (L(y) \rightarrow B(x,y))$
- $eg\exists y (L(y) \land orall x(S(x)
 ightarrow B(x,y))$
- $\neg \exists y (L(y) \land \exists x (S(x) \land B(x,y)))$

2.

- (a) 对于任意的x,可以取 y=x+1,z=x-1,此时满足
- (b) 对于任意的x,可以取 y=2x,z=x,此时满足
- (c) 对于任意的x,可以取 y=x+4,z=x+2,此时满足

Ø q→r + (p→q) → (p→r)

•		
ŀ	P→q	assumption
2.	I P	assumption
3	9	→e 1.2
4	q→r	premise
7	r	→e 4.3
6.	p⇒r	→i 2-5

7. (p-g)+(p->r) ->11-6

(B) + q → (p → (p → (q → p)1)

1.	q assumption
7.	p assumption
3	p assumption
4.	assumption
7	p
b	q→p →i 4-5
٦.	p-1(q-p) -1 3-6/
Ş .	p-1p-4-p1) -12-7
9.	p-1p-1p-19-1911 -il-8

Ø. P → qAr+ (p → q) 1 (p → r)

1.	Pd	ssumpton \
2.	p→q1r	premise
3.	yar	→e1.2
4.	9	rei I
7	p → q	→ · 1-4
6.	IP	assumption
٦.	p→g~r	premise
g.	gar	→e1.7
9.	\ <u>r</u>	Nez 8
(0	por	→i 6-9

11. Up-9) NCp-r) NE 5.10.

Control of the Control

の. parp + remy 1600g

1. PATP premise

2. P MACI 1

3. 7p 162 2 4 1 162.3

5. 7(r→q) 1(r→q) 1e 4.

20. 3x15-0111) + 5-30(17)

7 7 .	, ((1))	JIVII 1
1.	S 04W ⇒x(5 → R(x1) xo. 5→ R(xo)	mption premix and tion
	81%)	761.3
4	(X)AYE	34x4·
k.	S>3xR(x)	7:11-S

& Y2(p1x) 1 x (x1) + Yx p1x) 1 Yx Q(3).

1. Yx (pix) a (x) premise

2. Xo. p(xo) AQ(xo) YX @ 1

3. p1%) 1e12

4. q(X.) 1 l2 2

5. Vxp13) Vx Px 12-3

6. 4xq(x) 4x i 2-4

7. Vxplx) 1 VxQlx) 125.6.

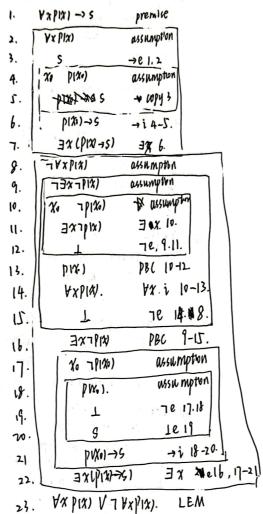
(\$) דער האל דער . (\$) דער . (\$) premise

1 1		
2.	(XIJYEr	WH MIN pton
3.	1/X. P1X.).	uss was too
4.	3x P(x)	31 i3.
5	1_1_	764.2.
6.	7 (%)	713-5
٦.	(x) (x)	Vx i 3-6
8.	/_ T	767.1
9.	KIIKE	PBL 2-8.

(x) YXEF + (MITXY . @

44 11	1.11	
1.	3x PIX)	usunupthan
2.	∀x7Plx)	ossumption.
3.	7. PV1.)	assumption
4.	7191%).	4x è z
۲.	T	783.4
6.		2.8.1 9 XE
٦.	KIPKE T	711-6.

②. Vx P(x) →S + ∃x (P(x) +S). 不会写.



=x(pin ->>). Ve 27. 2-10, 11-76.

24.