练习 1

列真值表，无需赘述。

7°

(¬	p	∨	q)	→	(¬	q	∧	r)
0	1	0	1	1	0	1	0	1
0	1	0	1	1	0	1	0	0
0	1	0	0	1	1	0	1	1
0	1	0	0	1	1	0	0	0
1	0	1	1	0	0	1	0	1
1	0	1	1	0	0	1	0	0
1	0	0	0	1	1	0	1	1
1	0	0	0	1	1	0	0	0

8°

(p	→	q)	→	(p	→	r)
1	1	1	1	1	1	1
1	1	1	0	1	0	0
1	0	0	1	1	1	1
1	0	0	1	1	0	0
0	1	1	1	0	1	1
0	1	1	1	0	1	0
0	1	0	1	0	1	1
0	1	0	1	0	1	0

9°

(¬	(p	∨	(q	∨	r)))	↔	((p	∨	q)	∧	(p	∨	r))
0	1	1	1	11	1	0	1	1	1	1	1	1	1
0	1	1	1	1	0	0	1	1	1	1	1	1	0
0	1	1	0	1	1	0	1	1	0	1	1	1	1
0	1	1	0	0	0	0	1	1	0	1	1	1	0
0	0	1	1	1	1	0	0	1	1	1	0	1	1
0	0	1	1	1	0	1	0	1	1	0	0	0	0
0	0	1	0	1	1	1	0	0	0	0	0	1	1
1	0	0	0	0	0	0	0	0	0	0	0	0	0

练习2

参照*P*17归纳定义不容易错写、漏写。

1.

$L_0 = X_1 = \{x_1\}$

$L_1 = \{\neg\, x_1,\ x_1 \to x_1\}$

$L_2 = \{\neg(\neg\, x_1),\ \neg(x_1 \to x_1),\ x_1 \to (\neg x_1),\ x_1 \to (x_1 \to x_1),\ (\neg x_1) \to x_1,\ (x_1 \to x_1) \to x_1\}$

2.

$L_0 = X_2 = \{x_1,\ x_2\}$

$L_1 = \{\neg\, x_1,\ \neg\, x_2,\ x_1 \to x_1,\ x_1 \to x_2,\ x_2 \to x_1,\ x_2 \to x_2\}$

$L_2 = \{\neg(\neg\, x_1),\ \neg(\neg\, x_2),\ \neg(x_1 \to x_1),\ \neg(x_1 \to x_2),\ \neg(x_2 \to x_1),\ \neg(x_2 \to x_2),\ \neg(x_1 \to x_1),$
$x_1 \to (\neg x_1),\ x_1 \to (\neg x_2),\ x_1 \to (x_1 \to x_1),\ x_1 \to (x_1 \to x_2),\ x_1 \to (x_2 \to x_1),\ x_1 \to (x_2 \to x_2),$
$x_2 \to (\neg x_1),\ x_2 \to (\neg x_2),\ x_2 \to (x_1 \to x_1),\ x_2 \to (x_1 \to x_2),\ x_2 \to (x_2 \to x_1),\ x_2 \to (x_2 \to x_2),$
$(\neg x_1) \to x_1,\ (\neg x_2) \to x_1,\ (x_1 \to x_1) \to x_1,\ (x_1 \to x_2) \to x_1,\ (x_2 \to x_1) \to x_1,\ (x_2 \to x_2) \to x_1,$
$(\neg x_1) \to x_2,\ (\neg x_2) \to x_2,\ (x_1 \to x_1) \to x_2,\ (x_1 \to x_2) \to x_2,\ (x_2 \to x_1) \to x_2,\ (x_2 \to x_2) \to x_2\}$

3.

$|L_0| = |X_3| = 3$

$|L_1| = 3 + 3 \times 3 = 12$

$|L_2| = 12 + 3 \times 12 + 12 \times 3 = 84$

$|L_3| = 84 + 3 \times 84 + 84 \times 3 + 12 \times 12 = 732$