

HOMEWORK 6

I Exercises from PtMW

Chapter 6

(3) Let p , q and r be true and let s be false. Find the truth value of the following statements.

(a) $((p \ \& \ q) \ \& \ s)$ *False*

(b) $(p \ \& \ (q \ \& \ s))$ *False*

(e) $((p \ \& \ q) \leftrightarrow (r \ \& \ \sim s))$ *True*

(4) Construct truth tables for the following statements.

(a) $(p \vee \sim q)$

P	q	$\sim q$	$(p \vee \sim q)$
1	1	0	1
1	0	1	1
0	1	0	0
0	0	1	1

(b) $\sim (\sim p \ \& \ q)$

P	q	$\sim p$	$\sim p \ \& \ q$	$\sim (\sim p \ \& \ q)$
1	1	0	0	1
1	0	0	0	1
0	1	1	1	0
0	0	1	0	1

Or consider of the one the top and bottom laws: $a \wedge 0 = 0$. The operation \wedge does not satisfy this property, since ' $p \wedge 0$ ' and ' 0 ' are different formulas of the set *Form*.