

Week 4.

Problem 1

Acme Comp	
ann. rev	net prof
138	8
LP	True
	False

Nadig's	
ann. rev	net po
84	5
LP	False
	True

Quipole	
ann. rev	net p
111	13
LP	True
False	True

a) false

b) true

c) $A \vee Q \Rightarrow \text{True}$

d) $\text{False} \rightarrow \text{True} \Rightarrow \text{True}$

e) $\text{True} \rightarrow \text{True} \Rightarrow \text{True}$

Problem 2

a) $p \wedge q \checkmark$

$$b) p \wedge \bar{q} \quad \checkmark$$

$$c) \bar{p} \wedge \bar{q} \quad \checkmark$$

$$d) \bar{p} \wedge \bar{q} \quad \times \quad p \vee q \quad \checkmark$$

$$e) p \rightarrow q \quad \checkmark$$

$$f) (p \vee q) \wedge (p \rightarrow \bar{q})$$

$$g) p \leftrightarrow q$$

Problem 3

Problem 4

p	\bar{p}	q	\bar{q}	$p \wedge \bar{p}$	$(p \vee \bar{q}) \rightarrow q$
				False	True

$(p \rightarrow q) \leftrightarrow (\bar{q} \rightarrow \bar{p})$	$(p \rightarrow q) \Rightarrow (q \rightarrow p)$
	True

$p \vee \bar{p}$	$(p \vee q) \rightarrow (p \wedge q)$
True	True

Problem 5

$$1 = \text{True} \vee F$$

$$2 = \text{True} \vee F$$

Problem 6

isn't you is rich	not rich	happy / not h
True	False	isn't rich or

will not be rich a not rich tomorrow

question 10

- c) Mary doesn't walk and doesn't take bus.
 d) Ybr is not smart or isn't working hard.

Problem 7

a) $(p \wedge q) \rightarrow p$

p	q
T	T
T	F
F	T
F	F

$p \wedge q$
T
F
F
F

$(p \wedge q) \rightarrow p$
T
T
T
T

b)

$p \vee q$	$p \rightarrow (p \vee q)$
T	T
T	T
T	T
F	T

c) $\overline{p} \rightarrow (p \rightarrow q)$

T
T
T
T

$p \rightarrow q$
T
F
T
T

d) $(p \wedge q) \rightarrow (p \rightarrow q)$

T
