1.

Q -> P

Q <-> P

(R^P) -> Q

2.1) bukan keduanya

X	Y	~Y	X ^ ~Y	~(X^(~Y))
B	B	S	S	B
B	S	B	B	S
S	B	S	S	B
S	S	B	S	B

2.2) tautologi

A	B	C	~C	A v B	A v ~C	(A v B) ^ (A v ~C)	B ^ ~C	A v (B ^ ~C)	(A v B) ^ (A v ~C) -> A v (B ^ ~C)
B	B	B	S	B	B	B	S	B	B
B	B	S	B	B	B	B	B	B	B
B	S	B	S	B	B	B	S	B	B
B	S	S	B	B	B	B	S	B	B
S	B	B	S	B	S	S	S	S	B
S	B	S	B	B	B	B	B	B	B
S	S	B	S	S	S	S	S	S	B
S	S	S	B	S	B	S	S	S	B

3.1)

Tina is not angry **and** Anthony is not laughing

~P ^ ~Q

P = Tina is angry

~P = Tina is not angry

Q = Anthony is laughing

~Q = Anthony is not laughing

3.2)

Claire is not watching television or Laura is not reading the newspaper

~P v ~Q

P = Claire is watching television

~P = Claire is not watching television

Q = Laura is reading the newspaper

~Q = Laura is not reading the newspaper
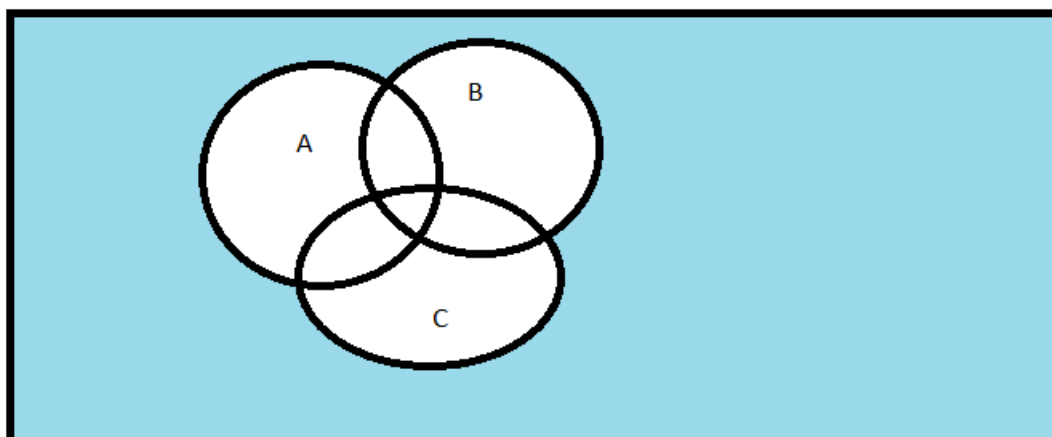

4.1)

P(A) = {∅, {a}, {b},{a,b}}

4.2)

P(P(A)) = { ∅ ,{a}, {b},{a,b}, {{∅},{a}}, {{∅},{b}}, {{∅},{a,b}}, {{a},{b}}, {{a},{a,b}}, {{a},{a,b}},{{b},{a,b}},{{},{a},{b}},{{},{a},{a,b}},{{},{b},{a,b}},{{a},{b},{a,b}},{{},{a},{b},{a,b}} }
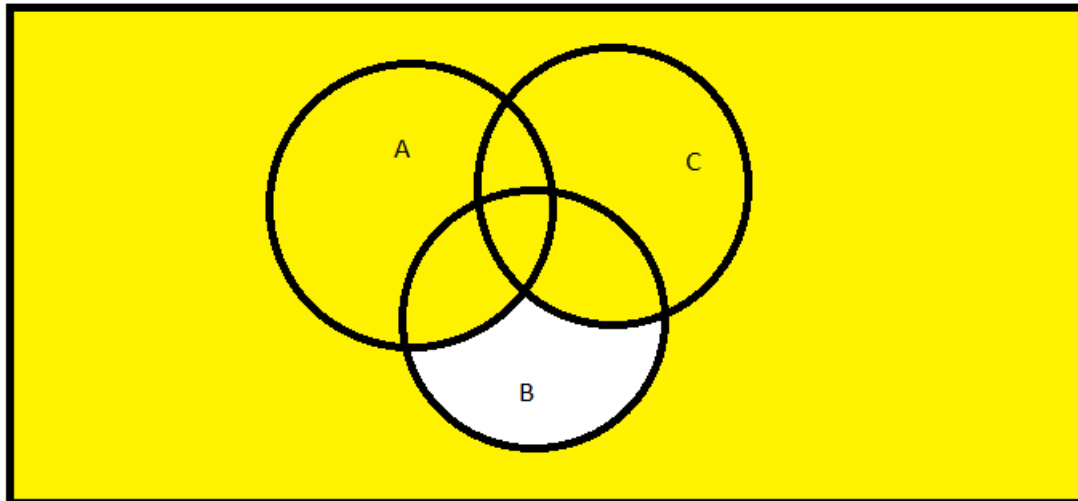
5)

6.1)

$$(A \cap B)^c \cap C^c$$

6.2)

7) "It is Wednesday. It is not tea's time. If it is Wednesday and cold out, then it is tea's time. Therefore, it is not cold out."

P = Wednesday

Q = Tea Time

R = Cold

P

~Q

P ^ R → Q

~R

P	Q	R	(P^R)	~Q	P^~Q	(P^R) -> Q	(P ^ ~Q)^(P ^ R -> Q)	~R	(P ^ ~Q)^(P ^ R -> Q) -> ~R
B	B	B	B	S	S	B	S	S	B
B	B	S	S	B	S	B	S	B	B
B	S	B	B	S	B	S	S	S	B
B	S	S	S	B	B	B	B	B	B
S	B	B	S	S	S	B	S	S	B
S	B	S	S	B	S	B	S	B	B
S	S	B	S	S	S	B	S	S	B
S	S	S	S	B	S	B	S	B	B

Valid

8) (Ø ∪ A) ∩ (B ∪ A) = A

(Ø ∪ A) = (A ∪ Ø) → komutatif

(A ∪ Ø) → identitas