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p	q	r	$p \wedge (q \vee r)$	$(p \wedge q) \vee (p \wedge r)$.
T	T	T	T	T
T	T	F	T	T
T	F	T	T	T
T	F	F	F	F
F	T	T	F	F
F	T	F	F	F
F	F	T	F	F
F	F	F	F	F

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

$\equiv \neg q \wedge (\neg p \vee q)$

$\equiv (\neg q \vee q) \wedge (\neg q \vee \neg p)$

$\equiv F$

$F \rightarrow \neg p$ is a tautology.

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

It is a tautology.

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p | q≡¬ (p∧q)≡¬ (q∧p)≡q | p

p	q	p | q	q | p
T	T	F	F
T	F	T	T
F	T	T	T
F	F	T	T

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A Prolog rule:

sibling(X,Y):- mother(M,X), mother(M,Y), father(F,X), father(F,Y)

Find the full disjunctive form from truth table of following formula ((¬ p ^ q)→(p ↔ r))∨(q→¬ r)

p	q	r	((¬ p ^ q)→(p ↔ r))∨(q→¬ r)
F	F	F	T
F	F	T	T
F	T	F	T
F	T	T	F

T	F	F	T
T	F	T	T
T	T	F	T
T	T	T	T

So $((\neg p \wedge q) \rightarrow (p \leftrightarrow r)) \vee (q \rightarrow \neg r)$

$= \sum m(0,1,2,4,5,6,7)$

$= (\neg p \wedge \neg q \wedge \neg r) \vee (\neg p \wedge \neg q \wedge r) \vee (\neg p \wedge q \wedge \neg r) \vee (p \wedge \neg q \wedge \neg r) \vee (p \wedge \neg q \wedge r) \vee (p \wedge q \wedge \neg r) \vee (p \wedge q \wedge r)$