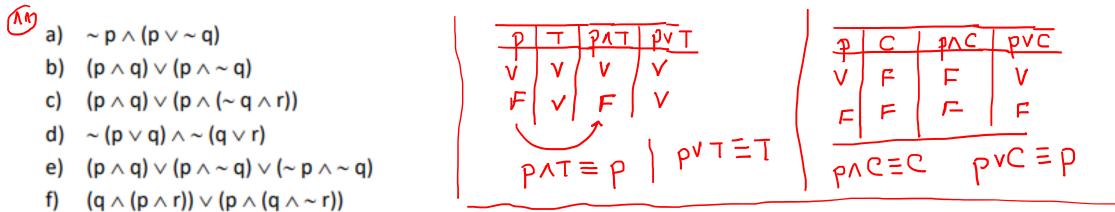
$$P \leftarrow p = (P \rightarrow q) \wedge (q \rightarrow P)$$

$$P$$

										_	
P	9	p <> 9	p > q	4->P	PAQ						
V	V	V	v	V	V						
V	F	F	Ł	ν	F						
1/1	17)	V	V	V	7/1	_					
	/F/	/F/	P	V							
F	V	F	V	F	F						
F	F	V	\\\\	V	V						
15	1 1	1 =	V A	F	n Fo						
	F	WV	V	V	VV						
	1 tabelas verdade 1						Loge	Pa	>q=	(p -> q)	1(9->p
Tabelas verdade ?							U	•	·		



a)
$$npn(pvnq) \equiv (npnp)v(npnnq) \equiv cv(npnnq) \equiv npnnq$$

Distribution Conc.

Taut.

b) $(P \wedge q) \vee (P \wedge v + q) = P \wedge (q v v + q)$

p > 9 -> r)
now associativo

d) $N(pvq) \wedge N(qvr) \equiv N[(pvq) V(qvr)] \equiv N(pV(qvq) Vr) \equiv N(pVqvr) \equiv vpNvqNvr$ Demorgan

```
a) \sim p \wedge (p \vee \sim q)
                                                     analogia
     (p \land q) \lor (p \land \sim q)
      (p \land q) \lor (p \land (\sim q \land r))
      \sim (p \vee q) \wedge \sim (q \vee r)
      (p \land q) \lor (p \land \sim q) \lor (\sim p \land \sim q)
      (q \land (p \land r)) \lor (p \land (q \land \sim r))
e) (Prq)v(Prvq)v(NPrvq)
         pem" en dência
     (bu (drnd)) n (nbund)
     (pnT)V(Npnng)
        PV(NPNNq) ) distributiva
    (brnb) v (brnd)
         TN(PVNg)
```

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f) (qn(pnn)) v(pn(qnnn))
(prop) Nr) V (prop) NUIL)
                                  associative
    11 fator commun"
 (PM4) M(RVNR)
            mesmo operador prop. assoc.
```

 $a \cdot b + a \cdot c = a \cdot (b + c)$

$$(p \wedge q) \vee r \equiv (p \vee r) \wedge (q \vee r)$$
 $(p \vee q) \wedge r \equiv (p \wedge r) \vee (q \wedge r)$
 $(p \wedge q) \wedge r \equiv p \wedge (q \wedge r)$
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 $(p \vee q) \vee r \equiv p \vee (q \vee r)$
 $(p \wedge q) \wedge r \wedge \delta$
 $(p \wedge q) \wedge \delta$
 $(p \wedge q)$

Analogia

(a+b)c = ac+bc

(a+b)+c=a+(b+c)

> paro escarer
permiteses

(ab)c = a.(bc)

Elimine os operadores \rightarrow e \leftrightarrow das proposições, por meio de equivalências lógicas que não

- a) $p \rightarrow (p \lor q)$
- b) $(p \rightarrow q) \rightarrow r$
- c) $p \leftrightarrow q$

$$a) p \rightarrow (pvq) \equiv up v (pvq) \equiv (upvp) v q \equiv T$$

$$= (NPNNq) \times (PNq)$$

$$= (NPNNq) \times (NPNP) \times (QNNq) \times (QNnq$$

h)
$$(p \wedge q) \rightarrow (\sim r \rightarrow \sim q)$$
 $(p \wedge q) \rightarrow (r \vee v \vee q)$
 $(p \wedge q) \vee (r \vee v \vee q)$
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 $(p \wedge q) \vee (r$