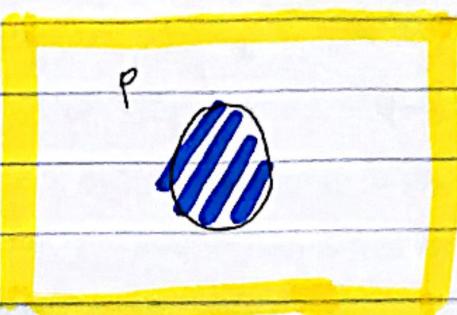
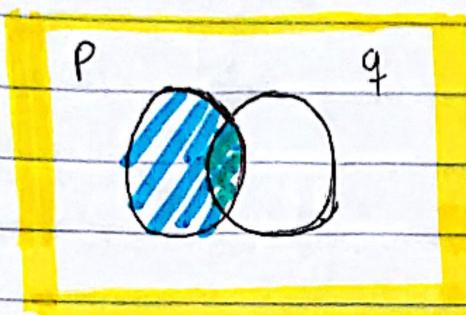


TAREA LEYES LOGICAS

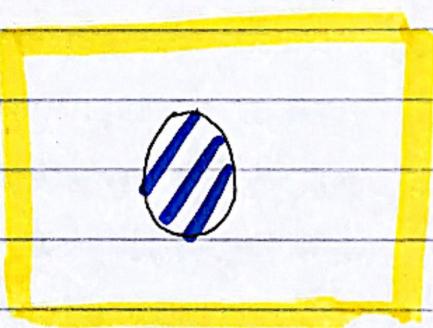
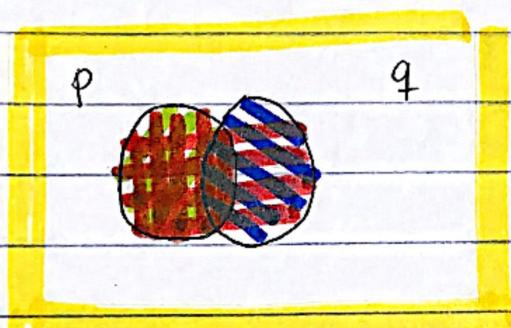
① Haciendo uso de diagramas de Venn, demuestra la veracidad o falsedad de la siguiente expresión lógica,

Absorción



Sí es equivalente

$$\begin{array}{l} \text{■ } (P \wedge q) \\ \text{■ } PV(P \wedge q) \end{array} \quad \boxed{PV(P \wedge q) \leftrightarrow P} \quad \begin{array}{l} \text{■ } P \end{array}$$



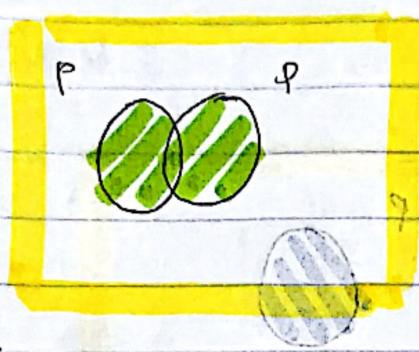
Sí es equivalente

$$\begin{array}{l} \text{■ } P \\ \text{■ } q \\ \text{■ } (P \vee q) \\ \text{■ } P \wedge (P \vee q) \end{array} \quad \boxed{P \wedge (P \vee q) \leftrightarrow P} \quad \begin{array}{l} \text{■ } P \end{array}$$

LOGICAS DE LOS ALGORITMOS

Idempotencia

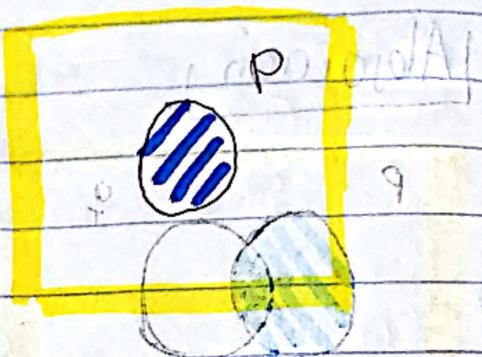
①



$$P \vee P \leftrightarrow P$$

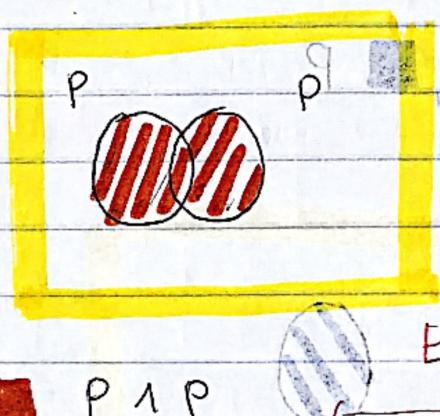
ES VERADERA

\leftarrow ~~obligatoriamente~~ \rightarrow (E)



ES equivalente

②



$$P \wedge P \leftrightarrow P$$

ES verdadera

\leftarrow ~~obligatoriamente~~ \rightarrow (E)



ES equivalente

q

$$q \leftrightarrow (p \vee q) \wedge q$$

q

V

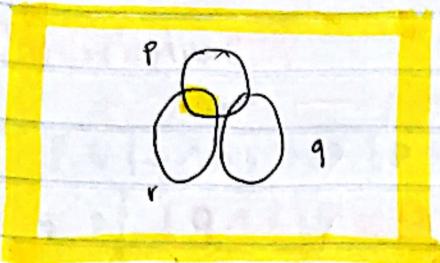
$$(p \vee q)$$

p

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

Idempotencia

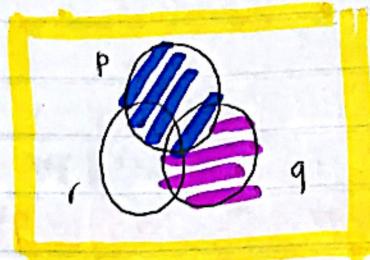
③



$$p \cap (p \vee q) \vee (r \cap p) \vee q$$

p ∩ r

↔
NO ES
EQUIVALENTE

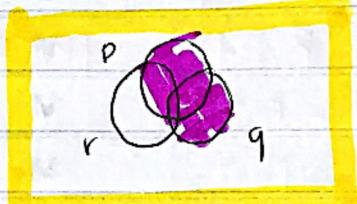


■ $(r \cap p)$
■ $p \cap (p \vee q)$

④



No es equivalente



■

$$p \vee q \wedge r$$

■

$$p \vee (p \vee q) \vee (r \cap q)$$

$$\boxed{p \vee (p \vee q) \vee (r \cap q) \leftrightarrow p \vee q \wedge r}$$

(2) Haciendo uso de tabla de verdad demuestra la
veracidad de la siguiente expresión lógica

Distributividad

$$(1) P \vee (q \wedge r) \leftrightarrow (P \vee q) \wedge (P \vee r) \quad \text{VERDADERO}$$

P	q	r	$(q \wedge r)$	$P \vee (q \wedge r)$	$(P \vee q)$	$(P \vee r)$	$(P \vee q) \wedge (P \vee r)$	$P \vee (q \wedge r) \leftrightarrow (P \vee q) \wedge (P \vee r)$
F	F	F	F	F	F	F	F	V
F	F	V	F	F	F	V	F	V
F	V	F	F	F	F	F	F	V
F	V	V	V	V	V	V	V	V
V	F	F	F	V	V	V	V	V
V	F	V	F	V	V	V	V	V
V	V	F	F	V	V	V	V	V
V	V	V	V	V	V	V	V	V

$$(2) P \wedge (q \vee r) \leftrightarrow (P \wedge q) \vee (P \wedge r) \quad \text{VERDADERO}$$

P	q	r	$(q \vee r)$	$P \wedge (q \vee r)$	$(P \wedge q)$	$(P \wedge r)$	$(P \wedge q) \vee (P \wedge r)$	$P \wedge (q \vee r) \leftrightarrow (P \wedge q) \vee (P \wedge r)$
F	F	F	F	F	F	F	F	V
F	F	V	V	F	F	F	F	V
F	V	F	V	F	F	F	F	V
F	V	V	V	F	F	F	F	V
V	F	F	F	F	F	F	F	V
V	F	V	V	F	V	F	V	V
V	V	F	V	V	F	F	V	V
V	V	V	V	V	V	V	V	V

De Molgant heeft heden te wachten op de presentatie.

$$\textcircled{1} \sim(p \vee q) \leftrightarrow \sim p \wedge \sim q$$

VERDADERO

P	q	$(P \vee q)$	$\sim(P \vee q)$	$\sim P$	$\sim q$	$\sim P \wedge \sim q$	$\sim(P \vee q) \leftrightarrow \sim P \wedge \sim q$
F	F	F	T	V	V	V	$\sim(P \vee q) \leftrightarrow (\sim P \wedge \sim q)$
F	V	V	F	V	F	V	$\sim(P \vee q) \leftrightarrow (\sim P \wedge \sim q)$
V	F	V	F	F	V	F	$\sim(P \vee q) \leftrightarrow (\sim P \wedge \sim q)$
V	V	V	F	F	V	F	$\sim(P \vee q) \leftrightarrow (\sim P \wedge \sim q)$

$$\textcircled{2} \quad \sim(p \wedge q) \leftrightarrow \sim p \vee \sim q$$

v VERDADEIRO

$P \vee Q$	$(P \wedge Q)$	$\sim(P \wedge Q)$	$\sim P$	$\sim Q$	$\sim P \vee \sim Q$	$\sim(P \wedge Q) \leftrightarrow \sim P \vee \sim Q$
F F	V F	V	W	V	V	F V F V V
F V	V F	V	W	F	V	V V V V V
V F	F	V	F	V	V	V
V V	0 V F A C S E W	(P F A Q) F (P A F) F (W V P) V A Q G				

$(\text{PA}^9 \vee \text{PA}^9) \leftrightarrow (\text{VP})^{\text{PA}^9} \cdot (\text{PA}^9 \vee \text{PA}^9) \cdot ((\gamma^{\text{PA}^9}) / (\text{PA}^9)) \cdot ((\text{VP})^{\text{PA}^9} / (\text{VP})) \cdot (\gamma \cdot \text{P}^9)$

$$(3) P \wedge (r \vee q) \vee (P \wedge S) \leftrightarrow P \wedge r \vee S \vee (P \wedge r \vee q \vee P)$$

P	r	q	s	$r \vee q$	$P \wedge (r \vee q)$	$(P \wedge S)$	$P \wedge r$	$P \wedge S$	$P \wedge r \vee S$	$P \wedge r \vee q \vee P$	$A \leftrightarrow B$
F	F	F	F	F	F	F	F	F	F	F	F
F	F	F	V	V	F	F	F	F	V	V	V
F	F	V	F	V	F	F	F	F	V	V	V
F	F	V	V	V	F	F	F	F	V	V	V
F	V	F	V	V	F	F	F	F	V	V	V
F	V	V	F	V	F	F	F	F	V	V	V
F	V	V	V	V	F	F	F	F	V	V	V
V	F	F	F	F	F	F	F	F	F	F	F
V	F	F	V	V	F	F	F	F	V	V	V
V	F	V	F	V	F	F	F	F	V	V	V
V	F	V	V	V	F	F	F	F	V	V	V
V	V	F	F	V	F	F	F	F	V	V	V
V	V	F	V	V	F	F	F	F	V	V	V
V	V	V	F	V	F	F	F	F	V	V	V
V	V	V	V	V	F	F	F	F	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V

$$(4) P \vee (r \wedge q) \vee (r \wedge j) \leftrightarrow P \vee r \wedge (q \vee j) \vee (P \wedge j)$$

P	r	q	j	$r \wedge q$	$P \vee (r \wedge q)$	$(r \wedge s)$	A	B	$P \wedge B$	$P \rightarrow B$	$P \wedge j$
F	F	F	F	F	F	F	F	F	F	F	F
F	F	F	V	F	V	F	F	F	V	V	F
F	F	V	F	F	V	F	F	F	V	V	F
F	F	V	F	F	V	F	F	F	V	V	F
F	F	V	V	V	V	F	F	F	V	V	V
F	V	F	F	F	V	F	F	F	V	V	F
F	V	F	V	V	V	V	V	V	V	V	V
F	V	V	F	V	V	F	F	F	V	V	V
F	V	V	V	V	V	V	V	V	V	V	V
V	V	F	F	F	V	F	V	V	V	V	F
V	V	F	V	V	V	V	V	V	V	V	V
V	V	V	F	F	V	V	V	V	V	V	F
V	V	V	V	V	V	V	V	V	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V
V	V	V	V	V	V	V	V	V	V	V	V