Ej. 1)

1.

$$\begin{array}{ll} p \to q & (1) \\ t \vee \sim q & (2) \\ s \wedge p & (3) \\ \hline s \vee t & (4) \end{array}$$

Lo vemos:

$$\begin{array}{l} (3)\ s \wedge p \\ \hline (5)\ p \end{array} \Rightarrow \begin{array}{l} (5)\ p \\ (1)\ p \to q \\ \hline (6)\ q \end{array} \Rightarrow \begin{array}{l} (6)\ q \\ (2)\ t \vee \sim q \\ \hline (7)\ t \end{array} \Rightarrow \begin{array}{l} (7)\ t \\ \hline \boxed{t \vee s} \end{array}$$

$\therefore$ es válido

2. $A - B = A - (A \cap B)$

Sea $x \in A - (A \cap B) \Leftrightarrow x \in A \wedge x \notin A \cap B$ [def −]

$\Leftrightarrow x \in A \wedge \sim x \in A \cap B$ [def $\notin$]

$\Leftrightarrow x \in A \wedge \sim (x \in A \wedge x \in B)$ [def $\cap$]

$\Leftrightarrow x \in A \wedge (x \notin A \vee x \notin B)$ [$\sim(p \wedge q) \equiv \sim p \vee \sim q$]

$\Leftrightarrow (x \in A \wedge x \notin A) \vee (x \in A \wedge x \notin B)$ [$p \wedge (q \vee r) \equiv (p \wedge q) \vee (p \wedge r)$]

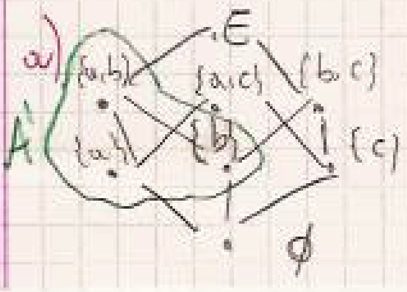
$\Leftrightarrow F \vee (x \in A \wedge x \notin B)$ [$p \vee \sim p \equiv F$]

$\Leftrightarrow x \in A \wedge x \notin B$ [$p \vee F \Leftrightarrow p$]

$\Leftrightarrow x \in A - B$ [def −]

3. $E = \{a, b, c\}$, en $P(E)$: $x \sim y \Leftrightarrow x \subseteq y$

a)



$P(E) = \{ \emptyset, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{b,c\}, E \}$